Information you requested...

Enclosed is the literature you requested illustrating and describing Simpson's wide range of panel meters and Electronic-Electrical test equipment. These instruments are available for immediate delivery from large stocks carried by leading distributors everywhere. See your local electronic distributor for quick service on your needs.

For fast and courteous engineering or technical information on your special panel meter or test equipment requirements ... contact your local Simpson Sales Representative listed on the reverse side of this letter. He is only a phone call away and eager to serve you.

Very truly yours

M. O. Buehring

M. O. Buehring
Director of Sales
Simpson Electric Company

SIMPSON ELECTRIC COMPANY
5200 West Kinzie Street • Chicago 44, Illinois • (312) EStebrook 9-1121

For Personal attention of:

T NELSON
Box 1546
Poughkeepsie NY 12603

Representative in your area is

48 ( )

Source Code

5203 ( )

Date Mailed: 10 66 2073 cmr

Enclosed:

See Sales Representative Listing on reverse side.

Simpson ELECTRIC COMPANY • SALES REPRESENTATIVES

Panel Meter and Test Equipment Specialists and Engineers at Your Service

03 NEW YORK, Great Neck, Long Island
Simpson Instrument Sales & Service Inc.
130 Cutter Mill Road
Phones: Area Code 212—683-0674
Area Code 516—482-3103

03 NEW JERSEY, Palisades Park (Branch)
Simpson Instrument Sales & Service Inc.
521 Third St.
Phone: Area Code 201—944-7733

04 EXPORT
International Amarex, Inc.
400 W. Madison Street
Suite 2119
Chicago, Illinois
Phone: Area Code 312—332-0646

10 CANADA, London, Ontario
Bach Simpson Ltd.
1255 Brydges St.
Phone: Area Code 519—451-9490

11 TENNESSEE, Memphis
Cartwright & Bean
Crosstown Station Box 760
560 S. Cooper St.
Phone: Area Code 901—276-4442

11 LOUISIANA, Metarie (Branch)
Cartwright & Bean
1812 Bullard Ave.
Phone: Area Code 504—834-8312

17 OHIO, Cleveland 7
Baehr, Greenleaf & Assoc., Inc.
14700 Detroit Ave.
Phone: Area Code 216—221-9030

17 OHIO, Cincinnati (Branch)
Baehr, Greenleaf & Assoc., Inc.
9505 Montgomery Rd.
Phone: Area Code 513—891-3827

17 OHIO, Xenia (Branch)
Baehr, Greenleaf & Assoc., Inc.
3350 Maplewood Drive
Phone: Area Code 513—426-5485

19 WISCONSIN, Milwaukee
E. A. Dickinson & Associates
3612 N. Greenbay Ave.
Phone: Area Code 414—264-1080

23 MICHIGAN, Detroit
R. C. Merchant & Co. Inc.
18411 W. McNichols Rd.
Phone: Area Code 313—535-6000

Western Michigan Office
P.O. Box 591
Benton Harbor, Mich.
Phone: Area Code 616—925-4211

24 CALIFORNIA, South Pasadena
Simpson Sales
205 Pasadena Avenue
Phone: Area Code 213—254-5136

26 OREGON, Portland
Don H. Burcham Co.
510 N.W. 19th Avenue
P.O. Box 2827
Phone: Area Code 503—226-4148

26 WASHINGTON, Seattle (Branch)
Don H. Burcham Co.
422 First Avenue West
Phone: Area Code 206—284-1121

27 HAWAII, Honolulu
Earl Associates
156 Mokauea Street
P.O. Box 2845
Phone: 815-649

28 MISSOURI, St. Louis
Norman W. Kathrinus & Co. Inc.
2427 Brentwood Blvd.
Phone: Area Code 314— 962-5627

28 IOWA, Ottumwa (Branch)
Norman W. Kathrinus & Co. Inc.
549 Ottumwa St.
Phone: Area Code 515—MU 4-6110

28 KANSAS, Kansas City
N. W. Kathrinus & Co.
2336 S. Boeke Street
Box 23
Phone: Area Code 913—AD 6-4108

32 GEORGIA, Atlanta
Murphy & Cota
2110 Peachtree Street, N.W.
Phone: Area Code 404—355-0472

32 ALABAMA, Huntsville (Branch)
Murphy & Cota
904 Bob Wallace Ave.
Phones: Area Code 205—536-9121, 539-8476

32 FLORIDA, Orlando (Branch)
Murphy & Cota
712 W. Vassar
Phones: Area Code 305
424-5633—424-2167

32 NORTH CAROLINA, Greensboro
Murphy & Cota
2407 Runningbrook Dr.
P.O. Box 6365
Phone: Area Code 919—288-1923

32 NORTH CAROLINA, Winston-Salem (Branch)
Murphy & Cota
1106 Burke St.
Phones: Area Code 919
724-0750—724-1535

33 PENNSYLVANIA, Philadelphia
S. K. Macdonald, Inc.
1531 Spruce Street
Phone: Area Code 215—545-1205

33 DISTRICT OF COLUMBIA, Washington
S. K. Macdonald, Inc.
217 Riggs Bank Bldg.
14th Street and Park Road N.W.
Phone: Area Code 202—265-3938

33 MARYLAND, Baltimore (Branch)
S. K. Macdonald, Inc.
5500 Harford Rd., 2nd Fl.
Phone: Area Code 301—254-3380-3381

33 PENNSYLVANIA, Pittsburgh (Branch)
S. K. Macdonald, Inc.
106 Nelbon Ave.
Phone: Area Code 412—241-7025

34 MINNESOTA, Minneapolis
Mel Foster Co. Inc.
228 S. Cedar Lake Road
Phone: Area Code 612—374-2612

37 ILLINOIS, Chicago
Simpson Electric Company
5200 W. Kinzie St.
Phone: Area Code 312—379-1121

38 CALIFORNIA, San Francisco
W. J. Purdy Associates
312 Seventh St.
Phone: Area Code 415—863-3300

38 CALIFORNIA, Citrus Heights (Branch)
W. J. Purdy Associates
6527 Westbrook Drive
Phone: Area Code 916—725-4065

41 COLORADO, Denver
R. G. Bowen & Co. Inc.
721 South Broadway
Phone: Area Code 303—722-4641

41 UTAH, Salt Lake City
R. G. Bowen & Co. Inc.
31 S. 3rd East
Phone: Area Code 801—364-4632

42 NEW MEXICO, Albuquerque
C. T. Carlberg & Associates
2611 Quincy Street N.E.
P.O. Box 3177, Sta. D.
Phone: Area Code 505—265-1579

43 MASSACHUSETTS, Chestnut Hill
Paul R. Sturgeon & Co., Inc.
1330 Boylston Street
Phone: Area Code 617—734-7710

43 CONNECTICUT, Milford (Branch)
Paul R. Sturgeon, Inc.
P.O. Box 170
Phone: Area Code 203—874-6080

44 TEXAS, Dallas
J. Y. Schoonmaker Co., Inc.
5328 Redfield Street
P.O. Box 35266
Phone: Area Code 214—631-8480

44 TEXAS, Houston
J. Y. Schoonmaker Co. Inc.
6001 Gulf Freeway
Bldg. C, Suite B-146
Phone: Area Code 713—WA 6-9510

45 INDIANA, Indianapolis
Thomas & Sukup, Inc.
2060 E. 54th St.
Phone: Area Code 317—251-4574

48 NEW YORK, Liverpool
Leonard D. Allen, Inc.
115 Luther Avenue
Phone: Area Code 315—GR 1-3108

52 ILLINOIS, Chicago 44
Simpson Electric Company
5200 W. Kinzie St.
Phone: Area Code 312—379-1121

BULLETIN NO. 2075
Reprinted 8/30/66

Simpson

STOCK PANEL METERS

OVER 1325 STOCK SIZES AND TYPES

The Original Wide-Vue design by Simpson


AGM DIVISION

SIMPSON ELECTRIC COMPANY
5200 WEST KINZIE STREET, CHICAGO, ILLINOIS 60644 · AREA CODE 312, 379-1121

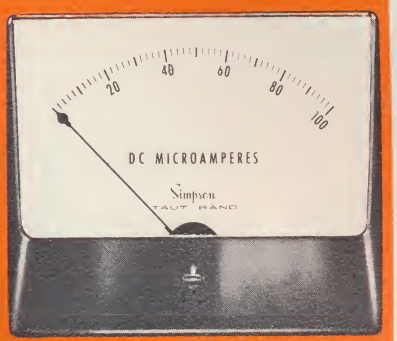
1½", 2½", 3½", 4½", 8" WIDE-VUE PANEL METERS

CASE STYLES

1½" Models

2½" Models

3½" Models



4½" Models

8" Models

STOCK PANEL METER RANGES AND PRICES

CALIBRATION AND DIALS—All DC Wide-Vue meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting). All AC Wide-Vue meters have the Simpson Iron-vane type movement. AC Milliammeters and Ammeters are calibrated for use on 25 through 800 cps. All AC Voltmeters are calibrated for use on 25 through 125 cps. Calibration at frequencies up to 800 cps can be made. Contact your local Distributor for prices.

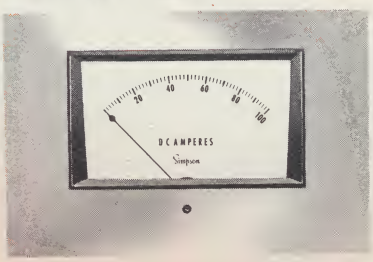
RANGE	APPROX. RESISTANCE (ohms)	1½" CASE STYLE CAT. NO.	1½" PRICE	2½" CASE STYLE CAT. NO.	2½" PRICE	3½" CASE STYLE CAT. NO.	3½" PRICE	4½" CASE STYLE CAT. NO.	4½" PRICE
DC VOLTMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-5	1000 ohms per volt	9540	$14.10	9550	$15.30	9720	$15.75	9870	$17.40
0-8		Note[1]	Note[1]	Note[1]	Note[1]	9730	15.75	9880	17.40
0-10		9541	14.10	9560	15.30	9740	15.75	9890	17.40
0-15		9542	14.10	9570	15.30	9750	15.75	9900	17.40
0-25		9543	14.10	9580	15.30	9760	15.75	9910	17.40
0-30		9544	14.10	9590	15.30	9770	15.75	9920	17.40
0-50		9545	14.10	9600	15.30	9780	15.75	9930	17.40
0-100		9546	14.10	9610	15.30	9790	15.75	9940	17.40
0-150		9547	14.10	9620	15.30	9800	15.75	9950	17.40
0-200		Note[1]	Note[1]	9622	15.30	9810	15.75	9960	17.40
0-250		Note[1]	Note[1]	9623	15.30	9820	15.75	9970	17.40
0-300		Note[1]	Note[1]	9630	15.30	9830	15.75	9980	17.40
0-300	2000 ohms per volt	9548	14.10	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]
0-500		9549*	17.70	9640	15.75	9840	16.50	9990	17.85
0-750		Note[1]	Note[1]	9650*	19.35	9850	16.50	10000	17.85
0-1000		Note[1]	Note[1]	9660*	19.65	9860*	20.55	10010*	21.90
DC AMMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-1	.050	2431	$14.10	2440	$14.55	2640	$15.30	2820	$16.50
0-1.5	.033	Note[1]	Note[1]	2450	14.55	2650	15.30	2830	16.50
0-2	.025	2432	14.10	2460	14.55	2660	15.30	2840	16.50
0-3	.0166	2433	14.10	2470	14.55	2670	15.30	2850	16.50
0-5	.010	2434	14.10	2480	14.55	2680	15.30	2860	16.50
0-10	.005	2435	14.10	2490	14.55	2690	15.30	2870	16.50
0-15	.0033	2436†	14.10	2500	14.55	2700	15.30	2880	16.50
0-25	.0020	2437	14.10	2510	14.55	2710	15.30	2890	16.50
0-30	.0017	Note[1]	Note[1]	2520	14.55	2720	15.30	2900	16.50
0-50	.001	2438†	14.10	2530	14.55	2730†	15.30	2910†	16.50
0-100	10.0	Note[1]	Note[1]	2540†	14.55	2740†	15.30	2920†	16.50
0-150	10.0	Note[1]	Note[1]	2550	14.55	2750†	15.30	2930†	16.50
0-200	10.0	Note[1]	Note[1]	2552†	14.55	2760†	15.30	2940†	16.50
0-300	10.0	Note[1]	Note[1]	2554†	14.55	2770†	15.30	2950†	16.50
0-500	10.0	Note[1]	Note[1]	Note[1]	Note[1]	2780†	15.30	2960†	16.50
15-0-15	.0033	Note[1]	Note[1]	Note[1]	Note[1]	2790	16.05	Note[1]	Note[1]
30-0-30	.0017	Note[1]	Note[1]	Note[1]	Note[1]	2800	16.05	Note[1]	Note[1]
50-0-50	.001	Note[1]	Note[1]	Note[1]	Note[1]	2810	16.05	Note[1]	Note[1]

Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

*External Multipliers, Model 183, are furnished on 1½" DC meters 500 volts or higher; on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts or higher. All others are self-contained.

†1½" DC Ammeters are self-contained through 10 amps. 15 amps and higher are supplied as 50 MV meters to be used with external shunts. 2½", 3½" and 4½" DC ammeters are self-contained through 50 amps. Higher range DC ammeters are 50 MV meters to be used with external shunts. Shunt listings are on page 17.

NEW 3½" and 4½" BEHIND PANEL BEZELS



NEW 3½" and 4½" WIDE VUE BEHIND THE PANEL MOUNTING BEZEL KITS

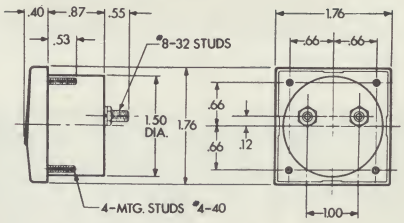
Modern, streamlined appearance, interchangeable with most popular recess and flush mount types. See pages 16 and 17 for complete specifications.

SPECIFICATIONS

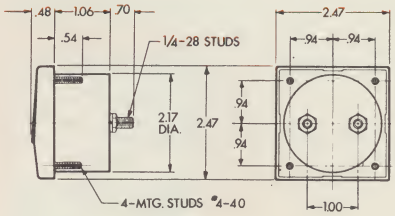
SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
1½"	1212T	± 2% of full scale	1.5" (38.1 mm)
	1214	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
2½"	1227T, 1257	± 2% of full scale	2.5" (63.8 mm)
	1247	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
3½"	1327T, 1337, 1357	± 2% of full scale	3.14" (79.7 mm)
	1347	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
4½"	1329T, 1339, 1359	± 2% of full scale	3.93" (100 mm)
	1349	± 3% F. S. @ 25° C. & 60 cy. Sine Wave	
8"	728T	± 2% of full scale	6.9" (174.2 mm)

RANGE	RESISTANCE (ohms)	1½" CASE STYLE CAT. NO.	PRICE	2½" CASE STYLE CAT. NO.	PRICE	3½" CASE STYLE CAT. NO.	PRICE	4½" CASE STYLE CAT. NO.	PRICE
DC MILLIAMMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-1*†	43	6163	$13.65	6175	$14.25	6310	$14.85	6470	$15.75
0-3*†	2.0	Note[1]	Note[1]	6180	14.25	6320	14.85	6480	15.75
0-5	2.0	6164	13.65	6190	14.25	6330	14.85	6490	15.75
0-10	10.0	6165	13.65	6200	14.25	6340	14.85	6495	15.75
0-15	6.6	6166	13.65	6210	14.25	6350	14.85	6502	15.75
0-20	5.0	Note[1]	Note[1]	6215	14.25	6360	14.85	6524	15.75
0-25	4.0	6167	14.10	6220	14.55	6370	15.30	6530	16.50
0-50	2.0	6168	14.10	6230	14.55	6380	15.30	6540	16.50
0-100	1.0	6169	14.10	6240	14.55	6390	15.30	6550	16.50
0-150	.66	6170	14.10	6250	14.55	6400	15.30	6560	16.50
0-200	.5	6171	14.10	6260	14.55	6410	15.30	6570	16.50
0-250	.4	6172	14.10	6270	14.55	6420	15.30	6580	16.50
0-300	.33	6173	14.10	6280	14.55	6430	15.30	6590	16.50
0-500	.2	6174	14.25	6290	14.55	6440	15.30	6600	16.50
0-750	.13	Note[1]	Note[1]	Note[1]	Note[1]	6450	15.30	6610	16.50
0-1000	.05	Note[1]	Note[1]	6292	14.55	6460	15.30	6620	16.50
DC MICROAMMETERS Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-50†	1800	4294	$17.85	4310	$18.45	4380	$18.90	4480	$20.40
0-100	1800	4295	15.90	4320	16.50	4390	17.25	4490	19.20
0-200	1100	4296	14.40	4330	15.15	4400	15.75	4500	17.40
0-500†	90	4297	14.10	4340	14.85	4410	15.45	4510	16.80
25-0-25	1800	4298	18.00	Note[1]	Note[1]	4420	19.05	4520	20.55
50-0-50†	1800	4302	16.05	4350	16.80	4430	17.40	4530	19.35
100-0-100	1100	4300	14.55	4351	15.30	4440	15.90	4540	17.55
500-0-500	43	4301	13.80	4352	14.40	4450	15.15	4550	15.90

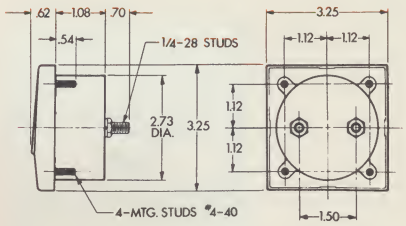
DIMENSIONS



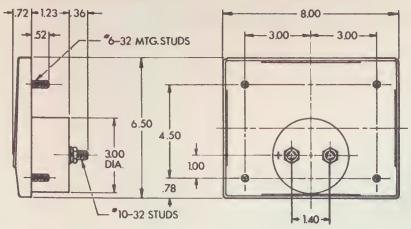
1½" Models 1212T, 1214



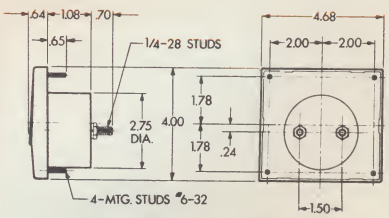
2½" Models 1227T, 1247, 1257



3½" Models 1327T, 1337, 1347, 1357



8" Model 728T



4½" Models 1329T, 1339, 1349, 1359

TAUT BAND METERS

RANGE	RESISTANCE (ohms)	1½" CASE STYLE CAT. NO.	PRICE	2½" CASE STYLE CAT. NO.	PRICE	3½" CASE STYLE CAT. NO.	PRICE	4½" CASE STYLE CAT. NO.	PRICE	8" CASE STYLE CAT. NO.	PRICE
TAUT BAND DC MICROAMMETERS Self Shielding Meter Movement		MODEL 1212T		MODEL 1227T		MODEL 1327T		MODEL 1329T		MODEL 728T	
0-5	5750	—	—	—	—	4358‡	$35.25	4458‡	$37.50	—	—
0-10	4900	—	—	4303	$29.70	4359	30.90	4459	33.45	—	—
0-15	1960	4601•	$26.85	4304	26.85	4361	27.75	4461	30.30	—	—
0-25	1960	4602•	25.05	4306	25.50	4371	26.70	4471	29.10	11200	$33.60
0-50	1100	4603•	19.50	4311	20.10	4381	20.55	4481	22.05	11201	29.55
0-100	500	4604•	17.55	4321	18.15	4391	18.90	4491	20.85	11203	28.50
0-200	234	4605•	16.20	4331	17.10	4401	17.70	4501	19.50	Note[1]	Note[1]

†Resistance of 0-50 Mic Meter in Model 1212 is 5500 ohms.
†Resistance of 0-500 Mic Meter in Model 1212 is 190 ohms.
‡High flux annular taut band meter movement.
•New Panel Meter Addition.
‡Available in 8" size: Model 728—Catalog No. 11210 . . . $26.10.

SIMPSON PANEL METERS ARE CARRIED IN STOCK BY ELECTRONIC DISTRIBUTORS EVERYWHERE.

Simpson

1½", 2½", 3½", 4½" WIDE-VUE PANEL METERS

CASE STYLES

1½" Models

2½" Models

3½" Models

4½" Models

SIMPSON STOCK METER RANGES AND PRICES

CALIBRATION AND DIALS—All DC Wide-Vue meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting). All AC Wide-Vue meters have the Simpson Iron-vane type movement. AC Milliammeters and Ammeters are calibrated for use on 25 through 800 cps. All AC Voltmeters are calibrated for use on 25 through 125 cps. Calibration at frequencies up to 800 cps can be made. Contact your local Distributor for prices.

SPECIFICATIONS

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
1½"	1212	±2% of full scale	1.5" (38.1 mm)
	1214	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
2½"	1227, 1237, 1257, 1277	±2% of full scale	2.5" (63.8 mm)
	1247	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
3½"	1327, 1337, 1357, 1377	±2% of full scale	3.14" (79.7 mm)
	1347	±3% F. S. @ 25° C. & 60 cy. Sine Wave	
4½"	1329, 1339, 1359, 1379*	±2% of full scale*	3.93" (100 mm)
	1349	±3% F. S. @ 25° C. & 60 cy. Sine Wave	

*Compensated Wattmeters ±3%.

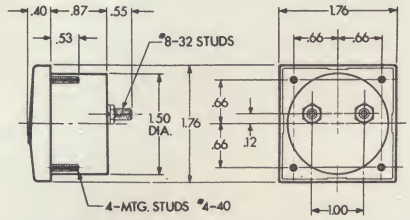
RANGE	APPROX. RESISTANCE (ohms)	1½" CASE STYLES CAT. NO.	1½" PRICE	2½" CASE STYLES CAT. NO.	2½" PRICE	3½" CASE STYLES CAT. NO.	3½" PRICE	4½" CASE STYLES CAT. NO.	4½" PRICE
DC MILLIVOLTMETER Self Shielding Meter Movement		MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
0-50	10	7005	$14.10	7010	$14.40	7020	$15.15	7030	$16.50
50-0-50	20	—	—	—	—	7021	15.15	7031	16.50
RF AMMETERS Self Shielding Meter Movement						MODEL 1337		MODEL 1339	
0-1	.343	—	—	—	—	2970	$17.55	3050	$20.10
0-1.5	.200	—	—	—	—	2980	17.55	3060	20.10
0-2	.120	—	—	—	—	2990	17.55	3070	20.10
0-2.5	.10	—	—	—	—	3000	17.55	3080	20.10
0-3	.08	—	—	—	—	3010	17.55	3090	20.10
0-5	.045	—	—	—	—	3020	17.55	3100	20.10
0-8	.031	—	—	—	—	3030	17.55	3110	20.10
0-10	.023	—	—	—	—	3040	17.55	3120	20.10
RF MILLIAMMETERS Self Shielding Meter Movement									
0-500	.63	—	—	—	—	5362	$20.70	5364	$23.40
AC VOLTMETERS RECTIFIER TYPE Self Shielding Meter Movement		MODEL 1214		MODEL 1247		MODEL 1347		MODEL 1349	
0-5	2000 OHMS PER VOLT	10011	$19.50	10015	$18.15	10020	$20.85	10090	$22.95
0-10		10012	19.50	10016	18.15	10030	20.85	10100	22.95
0-15		Note[1]	Note[1]	Note[1]	Note[1]	10040	20.85	10110	22.95
0-50		Note[1]	Note[1]	Note[1]	Note[1]	10050	20.85	10120	22.95
0-150		10013	19.50	10017	18.15	10060	20.85	10130	22.95
0-300		10014	19.50	10018	18.15	10070	20.85	10140	22.95
VOLUME LEVEL INDICATORS DECIBEL METERS Self Shielding Meter Movement RANGE Zero Power Level—6 MW. 500 Ohm Line				MODEL 1247		MODEL 1347		MODEL 1349	
General-Purpose 5000 ohms		—	—	3483	$20.40	3485	$21.60	3487	$22.35
VOLUME LEVEL INDICATORS V. U. METERS† Self Shielding Meter Movement Reference Level—1 MW. 600 Ohm Line		MODEL 1214		MODEL 1247		MODEL 1347		MODEL 1349	
A—Scale		10472	$21.90	10474	$24.15	10480	$24.75	10490	$26.85
B—Scale		Note[1]	Note[1]	Note[1]	Note[1]	10550	24.75	10560	26.85

DC GALVANOMETERS Self Shielding Meter Movement RANGE	SENSITIVITY MICRO-AMPERES	RESISTANCE (ohms)	1½" CASE STYLES CAT. NO.	1½" PRICE	2½" CASE STYLES CAT. NO.	2½" PRICE	3½" CASE STYLES CAT. NO.	3½" PRICE	4½" CASE STYLES CAT. NO.	4½" PRICE
			MODEL 1212		MODEL 1227		MODEL 1327		MODEL 1329	
50-0-50	500-0-500	43	3692	13.80	3700	$14.25	3730	$15.15	3732	$15.90
50-0-50	75-0-75	1800	3694	$14.55	3710	15.45	3720	16.80	3734	18.45

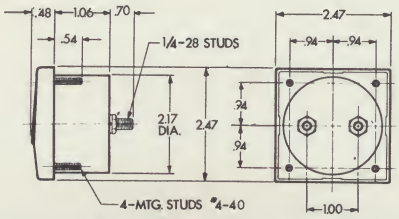
Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

†Simpson VU meters meet all the Electrical and Ballistic specifications established by Bell Laboratories and American Standards Association as required by broadcasting, communication and sound engineers. They are available with either type A or B scales. Type A scale stresses the level in VU for monitoring wire lines. Type B scale stresses per cent use of transmitter output and is the standard for broadcast service.

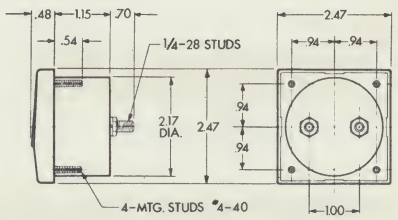
DIMENSIONS



1½" Models 1212, 1214



2½" Models, 1227, 1237, 1247



2½" Models 1257

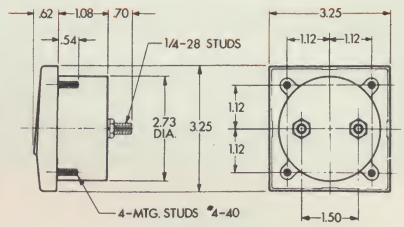
WIDE-VUE PANEL METERS

RANGE	APPROX. RESISTANCE (ohms)	2½" CASE STYLE CAT. NO.	2½" CASE STYLE PRICE	3½" CASE STYLE CAT. NO.	3½" CASE STYLE PRICE	4½" CASE STYLE CAT. NO.	4½" CASE STYLE PRICE
AC VOLTMETERS Iron Vane Type Movement		MODEL 1257		MODEL 1357		MODEL 1359	
0-5	33	—	—	10160	$14.40	10260	$16.20
0-10	133	9670	$13.80	10170	14.40	10270	16.20
0-15	300	9675	13.80	10180	14.40	10280	16.20
0-25	833	9680	13.80	10190	14.40	10290	16.20
0-50	3,333	9690	13.80	10200	14.40	10300	16.20
0-100	16,666	9695	14.10	10210	15.15	10310	16.20
0-150	25,000	9700	14.40	10220	15.45	10320	16.50
0-250	41,166	9705	14.40	10230	15.45	10330	16.50
0-300	50,000	9710	14.40	10240	15.45	10340	16.50
0-500*	83,333	9715	18.45	10250	19.65	10350	21.00
AC AMMETERS Iron Vane Type Movement		MODEL 1257		MODEL 1357		MODEL 1359	
0-1	.287	2560	$12.90	3130	$13.80	3260	$16.05
0-1.5	.185	2570	12.90	3140	13.80	3270	16.05
0-2	.115	—	—	3150	13.80	3280	16.05
0-3	.027	2575	12.90	3160	13.80	3290	16.05
0-5	.012	2580	12.90	3170	13.80	3300	16.05
0-10	.0031	2590	12.90	3180	13.80	3310	16.05
0-15	.0022	2599	12.90	3190	13.80	3320	16.05
0-25	.0003	2609	13.65	3200	14.25	3330	16.50
0-30	.0003	2615	13.65	3205	14.25	3335	16.50
0-50	.0006	2619	13.65	3210	14.25	3340	16.50
0-75	.0005	—	—	3215	15.45	3345	17.70
0-100	.012	2622†	12.90	3220†	13.80	3350†	16.05
0-150	.012	2624†	12.90	3230†	13.80	3360†	16.05
0-200	.012	2626†	12.90	3240†	13.80	3370†	16.05
0-300	.012	2627†	12.90	3250†	13.80	3380†	16.05
AC MILLIAMMETERS Iron Vane Type Movement		MODEL 1257		MODEL 1357		MODEL 1359	
0-10	2,000	6294	$12.90	6625	$13.80	6665	$16.05
0-50	80	6295	12.90	6630	13.80	6670	16.05
0-100	20	6296	12.90	6640	13.80	6680	16.05
0-250	5	6297	12.90	6650	13.80	6690	16.05
0-500	.9	6300	12.90	6660	13.80	6699	16.05
WATTMETERS DYNAMOMETER TYPE Single Phase — RANGE WATTS / RANGE VOLTS / MAX. AMPS		Wattmeters calibrated for a frequency range		for either magnetic or		non-magnetic panels and MODEL 1379	
0-75	150 / 1.0	—	—	—	—	10960	$38.55
0-150	150 / 2.0	—	—	—	—	10970	38.55
0-300	150 / 4.0	—	—	—	—	10975	38.55
0-750	150 / 10.0	—	—	—	—	10990	38.55
0-600	300 / 4.0	—	—	—	—	10980	41.25
0-1500	300 / 10.0	—	—	—	—	11000	41.25
0-3000	300 / 20.0	—	—	—	—	11010	41.25
COMPENSATED WATTMETERS		ACCURACY ±3% F.S.				MODEL 1379	
0-10	300 / .175	—	—	—	—	10930	51.45
0-20	300 / .400	—	—	—	—	10940	51.45
0-30	300 / .650	—	—	—	—	10950	51.45

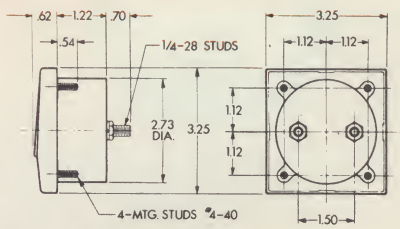
*External Multipliers, Model 183, (Featured on page 17) are furnished on AC meters having a range of 500 volts or higher. All others are self-contained.

†2½" AC ammeters are self-contained through 50 amps. 3½" and 4½" AC ammeters self-contained through 75 amps. Higher range AC ammeters are 5 amp meters to be used with external current transformer. See page 17 for current transformer listings.

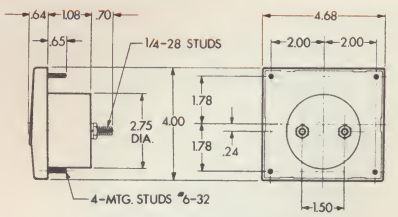
•New Model Additions.



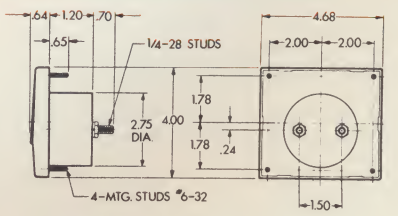
3½" Models 1327, 1337, 1347



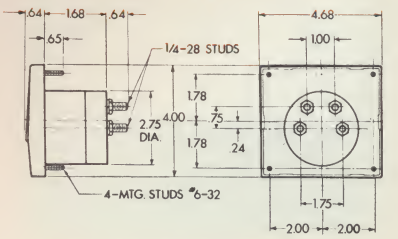
3½" Model 1357



4½" Models 1329, 1339, 1349



4½" Model 1359



4½" Model 1379

Simpson INSTRUMENTS THAT

2½", 3½", 4½"
• ROUND and
• RECTANGULAR
STOCK METERS

2½" Models 125, 155
3½" Models 25, 55

2½" Models 127, 157
3½" Models 27, 57

4½" Model 29

SIMPSON STOCK METER RANGES AND PRICES

CALIBRATION AND DIALS—All DC meters listed below have the Simpson self-shielded movement (Calibration not affected by stray magnetic fields or magnetic mounting).

RANGE	APPROX. RESISTANCE (Ohms)	2½" CASE STYLES CATALOG NOS. 125	127	PRICE	3½" CASE STYLES CATALOG NOS. 25	27	PRICE	4½" CASE STYLES CAT. NO. 29	PRICE
DC VOLTMETERS Self Shielding Meter Movement		MODELS 125	127		MODELS 25	27		MODEL 29	
0-1.5	1000 ohms per volt	8850	9020	$14.40	Note[1]	7290	$14.85	7620	$16.35
0-3		8860	9030	14.40	7070	7300	14.85	7630	16.35
0-5		8870	9040	14.40	7080	7310	14.85	7640	16.35
0-8		8880	9050	14.40	Note[1]	7320	14.85	7650	16.35
0-10		8890	9060	14.40	7100	7330	14.85	7660	16.35
0-15		8900	9080	14.40	7110	7350	14.85	7670	16.35
0-25		8910	9090	14.40	7120	7360	14.85	7680	16.35
0-30		8920	9100	14.40	7130	7370	14.85	7690	16.35
0-50		8930	9110	14.40	7140	7380	14.85	7700	16.35
0-100		8940	9130	14.40	7150	7400	14.85	7710	16.35
0-150		8950	9140	14.40	7160	7410	14.85	7720	16.35
0-200		8960	9160	14.40	7170	7430	14.85	7730	16.35
0-250		8970	9170	14.40	7180	7440	14.85	7740	16.35
0-300		Note[1]	9180	14.40	7190	7450	14.85	7750	16.35
0-500		Note[1]	9200	15.25	7200	7470	15.60	7760	16.95
0-750	2000 ohms per volt	Note[1]†	Note[1]†	Note[1]	7210	7490	15.60	7770	16.95
0-1000		Note[1]†	Note[1]†	Note[1]	7220†	7495†	19.35	7780†	21.15
0-1500		Note[1]†	Note[1]†	Note[1]	7230†	7520†	19.65	7790†	21.45
0-2000		Note[1]†	9225†	19.35	7240†	7530†	20.10	7800†	21.90
0-2500		Note[1]†	Note[1]†	Note[1]	Note[1]	7550†	20.40	7810†	22.20
0-3000		Note[1]†	Note[1]†	Note[1]	7260†	7560†	20.70	7820†	22.50
0-4000		Note[1]†	Note[1]†	Note[1]	Note[1]	Note[1]	—	7830†	22.80
0-5000		Note[1]†	Note[1]†	Note[1]	7280†	7600†	21.30	7840†	23.10
DC AMMETERS Self Shielding Meter Movement		MODELS 125	127		MODELS 25	27		MODEL 29	
0-1	.050	1460	1680	$14.25	0005	0230	$14.70	0450	$16.35
0-1.5	.033	1470	1690	14.25	0020	0240	14.70	0460	16.35
0-2	.025	Note[1]	1709	14.25	0030	0250	14.70	0470	16.35
0-3	.0166	1490	1710	14.25	0040	0260	14.70	0480	16.35
0-5	.010	1500	1720	14.25	0050	0270	14.70	0490	16.35
0-10	.005	1510	1730	14.25	0060	0280	14.70	0500	16.35
0-15	.0033	1520	1740	14.25	0070	0290	14.70	0512	16.35
0-25	.0020	1530	1750	14.25	0080	0300	14.70	0520	16.35
0-30	.0017	1540	1760	14.25	0090	0310	14.70	0530	16.35
0-50	.001	1550	1770	14.25	0099	0320	14.70	0540	16.35
0-75	10.0	1560‡	1780‡	13.80	0110‡	0330‡	14.25	0550‡	15.90
0-100	10.0	1570‡	1790‡	13.80	0120‡	0340‡	14.25	0560‡	15.90
0-150	10.0	1580‡	1800‡	13.80	0130‡	0350‡	14.25	0570‡	15.90
0-200	10.0	1590‡	1810‡	13.80	0140‡	0360‡	14.25	0580‡	15.90
0-250	10.0	Note[1]‡	Note[1]‡	Note[1]	0150‡	Note[1]	14.25	0590‡	15.90
0-300	10.0	1610‡	Note[1]‡	13.80	0160‡	0380‡	14.25	0600‡	15.90
0-500	10.0	1620‡	Note[1]‡	13.80	0170‡	0390‡	14.25	0610‡	15.90
0-750	10.0	Note[1]‡	Note[1]‡	Note[1]	0177‡	0400‡	14.25	0620‡	15.90
0-1000	10.0	Note[1]‡	Note[1]‡	Note[1]	0188‡	0410‡	14.25	0630‡	15.90
15-0-15	.0033	Note[1]	Note[1]	Note[1]	0200	Note[1]	15.15	0640	16.80
30-0-30	.0017	1660	1880	14.55	0210	0430	15.15	0650	16.80
50-0-50	.001	1670	1890	14.55	0220	0440	15.15	0660	16.80

†External Multipliers, Model 183, are furnished on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts and higher. All others are self-contained.

‡DC ammeters are self-contained for ranges up to and including 50 amperes. Higher range DC ammeters (50MV) listed above are calibrated for 5 ft. leads and require external shunts. See page 19 for complete listings.

Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

SEE YOUR ELECTRONIC DISTRIBUTOR FOR YOUR PANEL METER AND TEST EQUIPMENT REQUIREMENTS.

STAY ACCURATE

SPECIFICATIONS

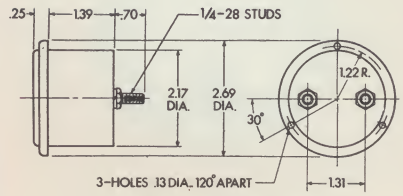
SIZE	MODEL NUMBER	ACCURACY	SCALE LENGTH
2½"	125, 127	±2% of full scale	1.8" (45.7 mm)
3½"	25, 27		2.5" (63.7 mm)
4½"	29		3.9" (99.0 mm)

RANGE	APPROX. RESISTANCE (Ohms)	2½" CASE STYLES CATALOG NOS. 125	127	PRICE	3½" CASE STYLES CATALOG NOS. 25	27	PRICE	4½" CASE STYLES CAT. NO. 29	PRICE
DC MILLIVOLTMETERS Self Shielding Meter Movement									
0-50	10	6970	6990	$13.80	6910	6930	$14.25	6950	$15.60
0-100	20	Note[1]	Note[1]	—	Note[1]	6940	14.25	6960	15.60
DC MILLIAMMETERS Self Shielding Meter Movement									
0-1	43	5580	5760	$13.50	4610	4790	$14.10	5070	$15.45
0-1.5	2.0	5590	5780	13.50	4620	4810	14.10	5080	15.45
0-3	2.0	Note[1]	5790	13.50	4630	4820	14.10	5090	15.45
0-5	2.0	5610	5800	13.50	4640	4830	14.10	5100	15.45
0-10	10.0	5620	5810	13.50	4650	4840	14.10	5110	15.45
0-15	6.6	5630	5830	13.50	4660	4860	14.10	5120	15.45
0-20	5.0	Note[1]	Note[1]	—	4670	4880	14.10	5130	15.45
0-25	4.0	5650	5860	14.25	4680	4890	14.70	5140	16.35
0-50	2.0	5660	5880	14.25	4690	4910	14.70	5150	16.35
0-75	1.3	5670	Note[1]	14.25	Note[1]	4930	14.70	5160	16.35
0-100	1.0	5680	5910	14.25	4710	4940	14.70	5170	16.35
0-150	.66	5690	5930	14.25	4720	4960	14.70	5180	16.35
0-200	.5	5700	5940	14.25	4730	4980	14.70	5190	16.35
0-250	.4	5710	5960	14.25	4740	5000	14.70	5200	16.35
0-300	.33	5720	5970	14.25	4750	5010	14.70	5210	16.35
0-500	.2	5730	5990	14.25	4760	5030	14.70	5220	16.35
0-750	.13	Note[1]	Note[1]	—	Note[1]	5050	14.70	5230	16.35
0-1000	.05	Note[1]	6020	14.25	4780	5060	14.70	5240	16.35
DC MICROAMMETERS Self Shielding Meter Movement									
0-50	1800	4210	4260	$18.90	3760	3860	$19.35	3960	$20.85
0-100	1800	4220	4270	16.35	3770	3870	17.10	3970	19.05
0-200	1100	4230	4280	14.55	3780	3880	15.45	3980	17.10
0-500	90	4240	4281	14.10	3790	3890	15.15	3990	16.35
25-0-25	1800	4192	4243	19.20	3800	3900	19.50	4000	21.00
50-0-50	1800	4194	4245	16.50	3810	3910	17.25	4010	19.20
100-0-100	1100	4196	4247	14.25	3820	3920	15.60	4020	17.40
500-0-500	43	Note[1]	4249	13.65	3830	3930	14.25	4030	15.60
TAUT BAND DC MICROAMMETERS Self Shielding Meter Movement		**TAUT BAND METERS** 125T	127T		25T	27T		29T	
0-5	5750	—	—	—	3738•	03838•	$35.70	3938•	$37.95
0-10	4900	4197•	04246•	$30.45	3739•	03839•	31.65	3939•	33.90
0-15	1960	4199•	04248•	27.15	3741•	03841•	28.35	3941•	30.80
0-25	1960	4201•	04251•	26.10	3751•	03851•	27.15	3951•	29.85
0-50	1100	4211•	04261•	20.55	3761•	03861•	21.00	3961•	22.50
0-100	500	4221•	04271•	18.00	3771•	03871•	18.75	3971•	20.70

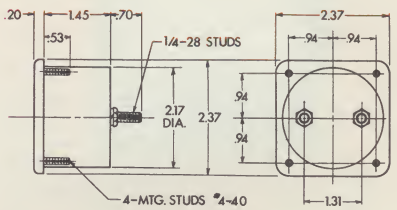
•New Panel Meter Addition.

Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks.

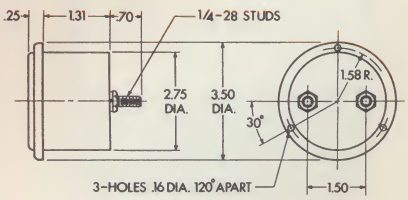
DIMENSIONS



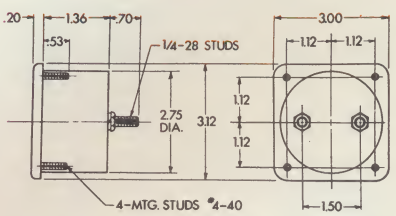
2½" Model 125, 125T



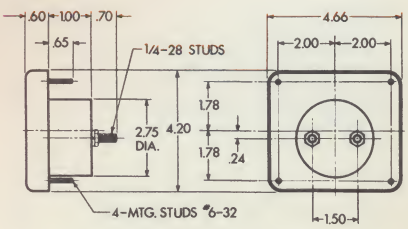
2½" Model 127, 127T



3½" Model 25, 25T



3½" Model 27, 27T



4½" Model 29, 29T

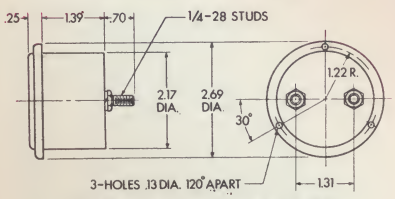
2½", 3½", 4½"
• ROUND and
• RECTANGULAR
PANEL METERS

2½" Models 125, 135, 155, 175
3½" Models 25, 35, 55, 75

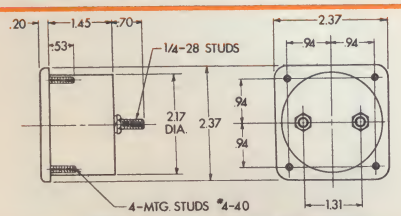
2½" Models 127, 137, 157, 177
3½" Models 27, 37, 57, 77

4½" Models 29, 39, 59, 79

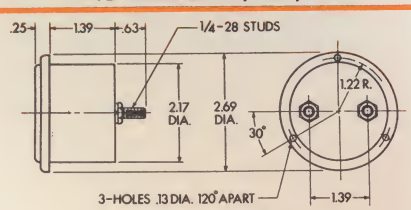
DIMENSIONS



2½" Models 125, 145, 155



2½" Models 127, 147, 157



2½" Model 135

SIMPSON STOCK METER RANGES AND PRICES

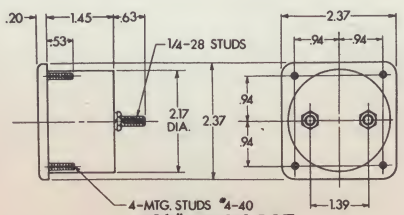
CALIBRATION AND DIALS—All DC meters listed below have the Simpson self-shielding movement. (Calibration not affected by stray magnetic fields or magnetic mounting). All AC meters have the Simpson Iron Vane type movement. AC Ammeters and Milliammeters are calibrated for use on 25 through 800 cps. AC Voltmeters are calibrated for use on 25-125 cps. Calibration at frequencies up through 800 cps can be made. Contact your local Distributor for prices.

Wattmeters listed below have the Simpson dynamometer movement calibrated for either magnetic or non-magnetic panels and for a frequency range of 25-125 cps. Accuracy ± 3%.

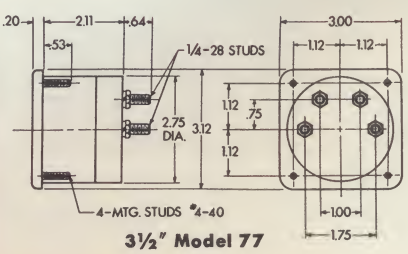
RANGE	APPROX. IMPEDANCE (Ohms) @ 60 cps	2½" CASE STYLES CATALOG NOS.		PRICE	3½" CASE STYLES CATALOG NOS.		PRICE	4½" CASE STYLES CAT. NO.	PRICE
RF AMMETERS Self Shielding Meter Movement Internal Thermocouple Type		MODELS 135	137		MODELS 35	37		MODEL 39	
0-1	.343	1901	1980	$15.60	670	750	$16.50	870	$19.05
0-1.5	.200	1910	2000	15.60	Note[1]	770	16.50	880	19.05
0-2	.120	Note[1]	2010	15.60	Note[1]	780	16.50	890	19.05
0-2.5	.10	1930	Note[1]	15.60	Note[1]	800	16.50	900	19.05
0-3	.08	1940	2040	15.60	710	810*	16.50	910	19.05
0-5	.045	1950	2060	15.60	720	830*	16.50	920	19.05
0-8	.031	Note[1]	2080	15.60	Note[1]	850	16.50	930	19.05
0-10	.023	Note[1]	2090	15.60	736	860	16.50	940	19.05
RF MILLIAMMETERS Self Shielding Meter Movement Internal Thermocouple Type					MODELS 35	37		MODEL 39	
‡0-115	4.0	—	—	—	5250	5290	$31.20	5330	$32.85
0-150	4.5	—	—	—	5260	5300	19.80	5340	22.50
0-250	3.5	—	—	—	5270	5310	19.80	5350	22.50
0-500	.63	—	—	—	5280	5320	19.80	5360	22.50
WATTMETERS Dynamometer Type Single Phase Maximum Range / Volts / Amps		MODELS 175	177		MODELS 75	77		MODEL 79	
0-75	150 / 1.0	Note[1]	10860	$28.95	10580	10650	$30.45	10720	$37.35
0-150	150 / 2.0	10800	10870	28.95	10590	10660	30.45	10730	37.35
0-300	150 / 4.0	Note[1]	10880	28.95	10600	10670	30.45	10740	37.35
0-750	150 / 10.0	10830	10900	28.95	10620	10690	30.45	10760	37.35
0-600	300 / 4.0	10820	10890	31.65	10610	10680	33.00	10750	40.20
0-1500	300 / 10.0	10840	10910	31.65	Note[1]	10700	33.00	10770	40.20
0-3000	300 / 20.0	Note[1]	10920	31.65	10640	10710	33.00	10780	40.20
COMPENSATED WATTMETERS Single Phase Maximum Range / Volts / Amps		MODELS			MODELS 75	77		MODEL 79	
0-10	300 / .175	—	—	—	Note[1]	10642	$48.60	10712	$50.40
0-20	300 / .400	—	—	—	Note[1]	10644	48.60	10714	50.40
0-20	500 / .175	—	—	—	Note[1]	10646	48.60	10716	50.40
0-30	300 / .650	—	—	—	Note[1]	10645	48.60	10715	50.40
0-30	500 / .300	—	—	—	Note[1]	10648	48.60	10718	50.40
0-50	500 / .500	—	—	—	Note[1]	10649	48.60	10719	50.40
DC GALVANOMETERS Scale / Sensitivity Micro-Amps. / Res. Ohms		MODELS 125	127		MODELS 25	27		MODEL 29	
50-0-50	500-0-500 / 43	3670	3690	$14.10	3630	3650	$14.55	3654	16.35
50-0-50	75-0-75 / 1800	3660	3680	15.15	3620	3640	16.50	3652	17.10

‡0-100 Linear Scale

Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks.



2½" Model 137



3½" Model 77

SPECIFICATIONS

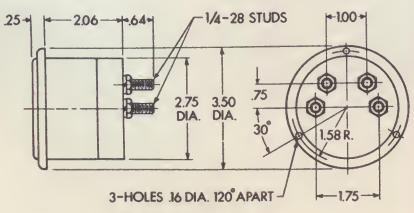
SIZE	MODEL NUMBER	ACCURACY	SCALE LENGTH
2½"	125, 127, 135, 137	±2% of full scale (Compensated wattmeters ±3%)	1.8" (45.7 mm)
	175, 177		1.6" (41.1 mm)
	155, 157		2.5" (63.7 mm)
3½"	25, 27, 35, 37		2.3" (57.4 mm)
	75, 77		3.8" (97 mm)
	55, 57		3.5" (89.0 mm)
4½"	29, 39		
	59		
	79		

RANGE	APPROX. IMPEDANCE (Ohms) @ 60 cps	2½" CASE STYLES CATALOG NOS. 155	157	PRICE	3½" CASE STYLES CATALOG NOS. 55	57	PRICE	4½" CASE STYLES CAT. NO. 59	PRICE
AC VOLTMETERS Iron Vane Type Meter Movement		MODELS			MODELS			MODEL	
0-1.5	3	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]	8710	$16.20
0-3	12	Note[1]	Note[1]	Note[1]	Note[1]	8540	$14.10	8720	16.20
0-5	33	Note[1]	9390	$13.50	8410	8550	14.10	8730	16.20
0-10	133	9260	9400	13.50	8420	8566	14.10	8740	16.20
0-15	300	9270	9420	13.50	8430	8580	14.10	8750	16.20
0-25	833	9280	9440	13.50	8440	8599	14.10	8760	16.20
0-50	3,333	9290	9450	13.50	8450	8610	14.10	8770	16.20
0-100	16,666	Note[1]	9460	14.55	8460	8620	15.30	8780	16.20
0-150	25,000	9310	9470	14.25	8470	8630	15.15	8790	16.35
0-250	41,166	9320	9490	14.25	8480	8650	15.15	8800	16.35
0-300	50,000	9330	9500	14.25	8490	8660	15.15	8810	16.35
0-500	83,333	9340‡	9520	19.20	8500‡	8680‡	19.50	8820‡	20.25
0-750	125,000	Note[1]	Note[1]	Note[1]	8510‡	8690‡	21.30	8830‡	22.20
0-1000	166,666	Note[1]	Note[1]	Note[1]	8520‡	8700‡	22.95	8840‡	24.00
AC AMMETERS Iron Vane Type Meter Movement		MODELS			MODELS			MODEL	
0-1	.287	2100	2270	$12.75	950	1120	$13.50	1290	$15.90
0-1.5	.185	Note[1]	Note[1]	Note[1]	960	1130	13.50	1302	15.90
0-2	.115	2120	2290	12.75	970	1140	13.50	1310	15.90
0-3	.027	2130	2300	12.75	980	1145	13.50	1320	15.90
0-5	.012	2140	2310	12.75	990	1160	13.50	1330	15.90
0-10	.003	2150	2320	12.75	1001	1170	13.50	1340	15.90
0-15	.0022	2160	2330	12.75	1010	1180	13.50	1350	15.90
0-25	.0003	2170	2340	13.05	1020	1190	13.80	1360	16.50
0-30	.0003	2180	2350	13.05	1030	1200	13.80	1370	16.50
0-50	.0006	2190	2360	13.05	1040	1210	13.80	1380	16.50
0-75	.0005	Note[1]	Note[1]	Note[1]	3432	3434	14.55	3436	17.40
0-75	.012	2200†	2370	12.75	1050†	1220†	13.50	1390†	15.90
0-100	.012	2210†	2380†	12.75	1060†	1230†	13.50	1400†	15.90
0-150	.012	2220†	2390†	12.75	1070†	1240†	13.50	1410†	15.90
0-200	.012	Note[1]	Note[1]	Note[1]	1080†	1250†	13.50	1420†	15.90
0-250	.012	2240†	2410†	12.75	1090†	1260†	13.50	1430†	15.90
0-300	.012	Note[1]	2420†	12.75	1100†	1270†	13.50	1440†	15.90
0-500	.012	2260†	2422†	12.75	1110†	1280†	13.50	1450†	15.90
AC MILLIAMMETERS Iron Vane Type Meter Movement		MODELS			MODELS			MODEL	
0-10	2,000	6030	6100	$12.75	Note[1]	5440	$13.50	5510	$15.90
0-15	875	—	—	—	5380	5499	13.50	Note[1]	Note[1]
0-25	390	—	—	—	Note[1]	5460	13.50	5530	15.90
0-50	80	6060	6130	12.75	5400	5470	13.50	5540	15.90
0-100	20	6070	6140	12.75	5410	5480	13.50	5550	15.90
0-250	5	6080	6150	12.75	5420	5490	13.50	5560	15.90
0-500	.9	6090	6152	12.75	5430	5500	13.50	5570	15.90

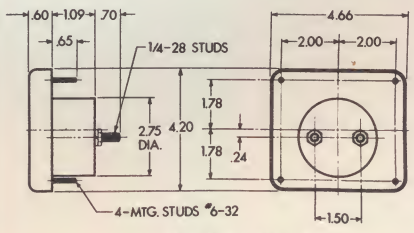
Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks.

‡External Multipliers, Model 183, (Featured on page 17) are furnished AC on meters having a range of 500 volts or higher; on 2½" DC meters 750 volts or higher; and on 3½" and 4½" DC meters 1000 volts and higher. All others are self-contained.

†These meters are 5 amp meters with scales as indicated and require external current transformers. See listings on page 19.

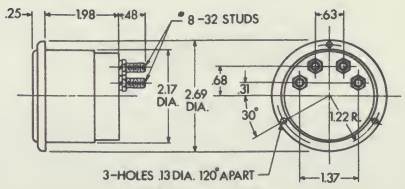


3½" Model 75

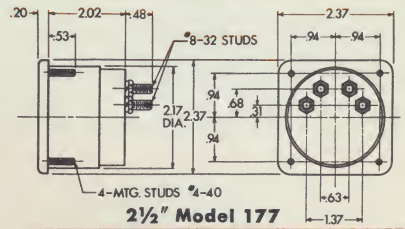


4½" Model 59

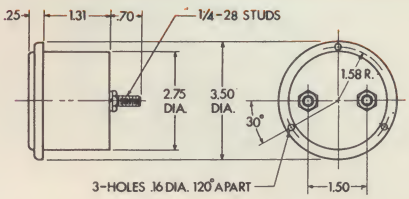
DIMENSIONS



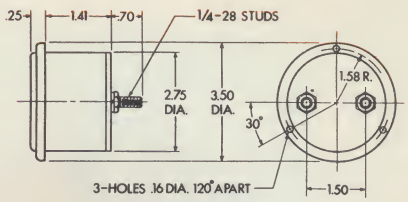
2½" Model 175



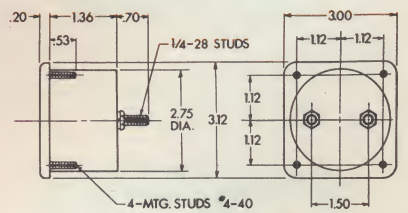
2½" Model 177



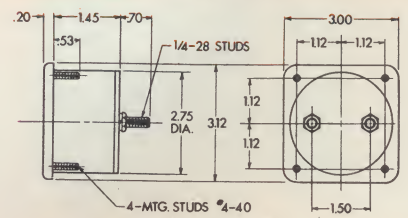
3½" Models 25, 35, 45



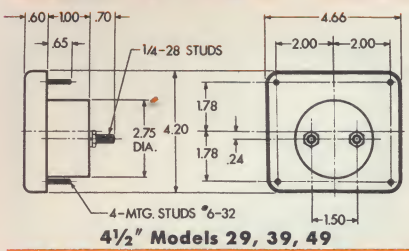
3½" Model 55



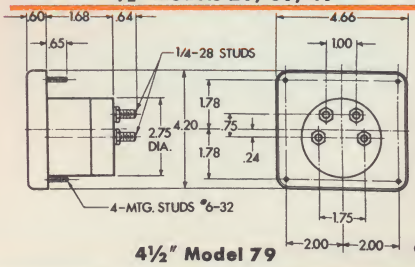
3½" Models 27, 37, 47



3½" Model 57



4½" Models 29, 39, 49

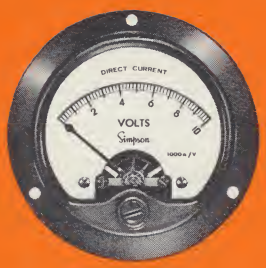


4½" Model 79

Simpson

INSTRUMENTS THAT STAY ACCURATE

2½", 3½", 4½", 6"
• ROUND and • RECTANGULAR STOCK METERS



2½" Model 145
3½" Model 45

2½" Model 147
3½" Model 47

4½" Model 49

6" Model 1150-1
1% Meter supplied
with Mirror Scale

SIMPSON STOCK METER RANGES AND PRICES

CALIBRATION AND DIALS—All meters have the Simpson self-shielding movement and may be used on either magnetic or non-magnetic panels.

SPECIFICATIONS

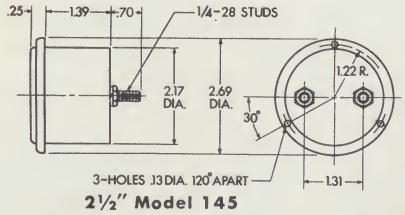
SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
2½"	145, 147	DB and Rectifier type meters ±3% of full scale @ 25°C. and 60 cycle sine wave VU meters per ASA specifications	1.8" (45.7 mm)
3½"	45, 47		2.5" (63.7 mm)
4½"	49, 142		3.8" (97 mm)
6"	1150,	±2% of full scale	4.6" (114.8 mm)
	1150-1	±1% of full scale, mirrored scale	

RANGE	Approx. RESISTANCE (Ohms)	2½" CASE STYLES CATALOG NOS.		PRICE	3½" CASE STYLES CATALOG NOS.		PRICE	4½" CASE STYLE CAT. NO.	PRICE
AC VOLTMETERS Rectifier Type Self Shielding Meter Movement					MODELS 45	47		MODEL 49	
0-1	2000 ohms per volt	—	—	—	Note[1]	8120	$20.70	8300	$22.65
0-3		—	—	—	Note[1]	8130	20.70	8310	22.65
0-5		—	—	—	7960	8140	20.70	8320	22.65
0-10		—	—	—	7970	8150	20.70	8330	22.65
0-15		—	—	—	7980	8160	20.70	8340	22.65
0-50		—	—	—	Note[1]	8170	20.70	8350	22.65
0-100		—	—	—	Note[1]	8180	20.70	8360	22.65
0-150		—	—	—	8010	8190	20.70	8370	22.65
0-300		—	—	—	8020	8200	20.70	8371	22.65
AC MILLIAMMETERS Rectifier Type Self Shielding Meter Movement					MODELS 45	47		MODEL 49	
0-1	600	—	—	—	6820	6850	$19.80	6880	$21.45
0-2	400	—	—	—	Note[1]	6860	19.80	6890	21.45
0-5	200	—	—	—	6840	6870	19.80	6900	21.45
AC MICROAMMETERS Rectifier Type Self Shielding Meter Movement					MODELS 45	47		MODEL 49	
0-100	3400	—	—	—	4080	4120	$22.65	4160	$24.30
0-200	2400	—	—	—	—	—	—	4170	21.90
0-300	1800	—	—	—	Note[1]	4140	19.80	4180	21.45
0-500	1200	—	—	—	Note[1]	4150	19.50	4190	21.15
Volume Level Indicators **DECIBEL METERS** Zero Power Level 6 MW 500 Ohm Line Self Shielding Meter Movement		MODELS 145	147		MODELS 45	47		MODEL 49	
GENERAL PURPOSE TYPE −10 to +6 db 5000 ohms		3470	3480	$20.25	Note[1]	3450	$20.40	3460	$22.20
Volume Level Indicators **VU METERS†** Reference Level 1 MW 600 Ohm Line Self Shielding Meter Movement					MODELS 45	47		MODEL 142	
"A" SCALE; Not Illuminated		—	—	—	10440	10450	$24.60	10460	$26.70
"B" SCALE; Not Illuminated		—	—	—	Note[1]	10520	24.60	10530	26.70
"A" SCALE; Illuminated		—	—	—	—	—	—	10470	29.40
"B" SCALE; Illuminated		—	—	—	—	—	—	10540	29.40

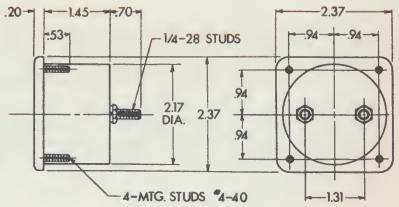
Note[1] Not normally carried in stock. Distributor delivery 2-3 weeks. Prices on request.

†Simpson VU meters meet all the Electrical and Ballistic specifications established by Bell Laboratories and American Standards Association as required by broadcasting, communication and sound engineers. They are available with either type A or B scales. Type A scale stresses the level in VU for monitoring wire lines. Type B scale stresses per cent use of transmitter output and is the standard for broadcast service. Impedance is 3900 Ω at "0" V.U. deflection.

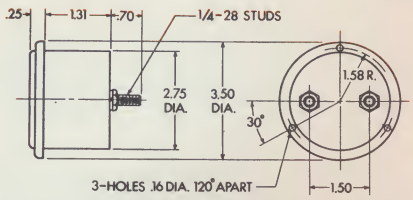
DIMENSIONS



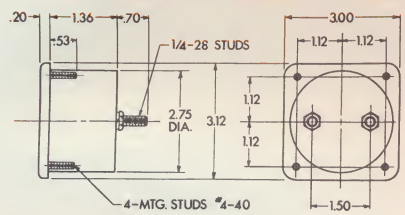
2½" Model 145



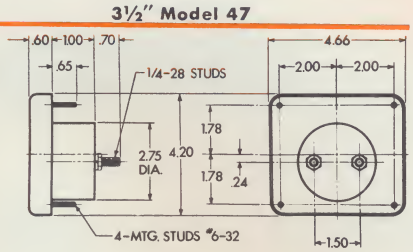
2½" Model 147



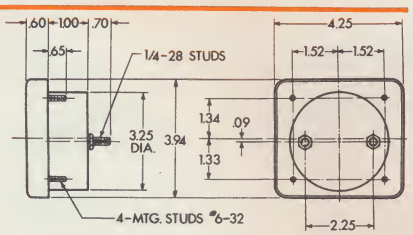
3½" Model 45



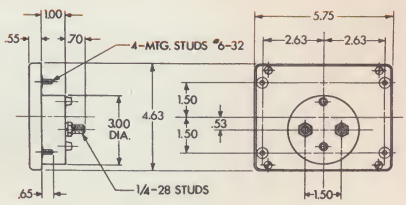
3½" Model 47



4½" Model 49



4½" Model 142



6" Model 1150

1% and 2% Tolerance 6" RECTANGULAR CASE STYLE—MODELS 1150

Self Shielding Meter Movement

RANGE	RESISTANCE APPROX. (Ohms)	CAT. NO.	PRICE
DC VOLTMETERS 2%		**MODEL 1150**	
0-10	1000 OHMS PER VOLT	9533	$20.85
0-25		9534	20.85
0-50		9535	20.85
0-100		9536	20.85
0-150		9537	20.85
0-300		9538	20.85
0-500	2000 Ω/V	9539	21.45
DC MILLIVOLTMETERS 2%		**MODEL 1150**	
0-50	10	7003	$21.75
DC AMMETERS 2%		**MODEL 1150**	
0-1	.050	2424	$21.75
0-5	.010	2425	21.75
0-10	.005	2426	21.75
0-15	.0033	2427	21.75
0-25	.0020	2428	21.75
0-30	.0016	2429	21.75
0-50	.001	2430	21.75

RANGE	RESISTANCE APPROX. (Ohms)	CAT. NO.	PRICE
DC MILLIAMMETERS 2%		**MODEL 1150**	
0-1	43	6153	$20.85
0-10	10	6154	20.85
0-50	2.0	6155	20.85
0-100	1.0	6156	20.85
0-500	.2	6157	20.85
DC MILLIAMMETERS 1% Mirrored Scale		**MODEL 1150-1**	
0-1	43	6158	$26.25
0-100	1.0	6161	26.25
0-500	.2	6162	26.25
DC MICROAMMETERS 2%		**MODEL 1150**	
0-15	5500	4282	$33.00
0-25	5500	4283	29.55
0-50	5200	4284	27.00
0-100	2100	4285	25.80
0-200	1100	4286	22.50
0-500	90	4287	21.90
DC MICROAMMETERS 1% Mirrored Scale		**MODEL 1150-1**	
0-50	5200	4290	$32.40
0-100	2100	4291	31.20
0-200	1100	4292	27.90
0-500	90	4293	27.30

3½" ELAPSED TIME PANEL METERS

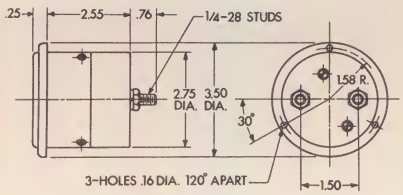
Widely used by research labs, manufacturing plants, broadcasting stations . . . to keep life and performance records based on operating time. These meters use self-starting synchronous clock motors. They indicate up to 99999.9, then recycle and begin again at 00000.0.

Molded bakelite case similar to the Simpson 3½" rectangular and round meters. Case depth—2 9/16".

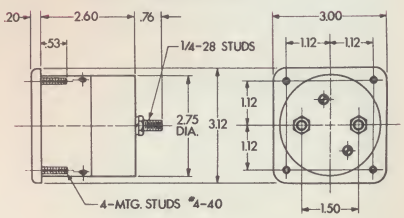
RANGE	MODEL 55ET CAT. NO.	MODEL 55ET PRICE	MODEL 57ET CAT. NO.	MODEL 57ET PRICE
120V-60 cps	3580	$20.85	3590	$20.85
240V-60 cps	3600	21.15	3610	21.15

3½" Model 55ET

3½" Model 57ET

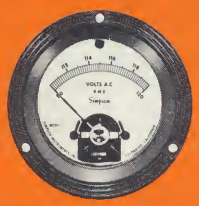


3½" Model 55ET



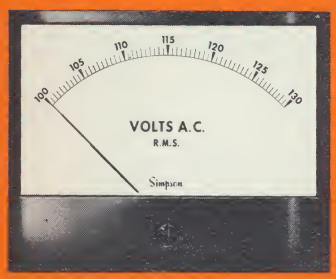
3½" Model 57ET

RUGGED-SEAL SEGMENTAL STOCK METERS



2½", 3½", 4½" Models

3½", 4½" Models



4" x 6" Models

WIDE-VUE AND BAKELITE SEGMENTAL VOLTMETERS Single, Multi-Range

3½" Model 1347

MULTI-RANGE 4½" Model 1349

4½" Model 49

SIMPSON AVERAGE SENSING, TRUE RMS & DC SEGMENTAL INSTRUMENTS

Segmental Voltmeters and frequency meters make it possible to measure very small changes in input conditions.

The significant portion of the overall voltage or frequency range is expanded to occupy the full scale length. Thus, only that segment of the range that is important appears. In addition to the standard expansions and accuracies shown, special segmental voltmeters can be built on order. Write the factory for a quotation.

The A.C. segmental voltmeters are available in either average sensing or true R.M.S. sensing units. When working with sine wave currents or when other measurements will be made with average sensing equipment, the average sensing meters are preferred.

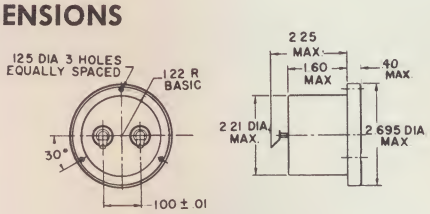
When working with distorted waveforms, as would be encountered in constant voltage transformers, S.C.R. circuits, D.C. to A.C. solid state inverters or similar equipment, the true R.M.S. sensing meter would probably be preferred.

GENERAL SPECIFICATIONS WIDE-VUE and BAKELITE CASE STYLES	AVERAGE SENSING AC SEGMENTAL VOLTMETERS		RUGGED-SEAL and RUGGEDIZED METAL CASE STYLES				
	SINGLE RANGE	MULTI-RANGE*	RMS SENSING AC SEGMENTAL VOLTMETERS			DC SEGMENTAL VOLTMETERS	FREQUENCY METERS
RANGE	100-130 AC Volts	100-130 / 200-260 / 400-520 AC Volts	100-130 AC Volts	105-125 AC Volts	110-120 AC Volts	—	—
ACCURACY (% OF CENTER SCALE VALUE)	±.5%	100-130 ±.5%; 200-260 ±.75%; 400-520 ±.75%	±1.0%	±.5%	±.3%	±.5%	±.25%
FREQUENCY RANGE	20-2000 CPS	50-1000 CPS	55-550 CPS			—	—
CENTER SCALE VALUE	115 Volts	115/230/460 Volts	115 Volts	115 Volts	115 Volts	27 Volts	60 CPS 400 CPS
SENSITIVITY OR POWER CONSUMPTION	.6 to 1.3 VA (Sensitivity decreases as input voltage increases)		50 OPV	65 OPV	80 OPV	100 OPV	3 VA Max.
MAX. INPUT VOLTAGE (10 SECONDS)	150 Volts RMS	150/300/600 Volts RMS	150 Volts RMS			40 Volts	140 Volts RMS
SQUARE WAVE WAVEFORM INFLUENCE	11%		2.5%	2.0%	1.0%	—	.1%
TRIANGULAR WAVE	5%		1.2%	.6%	.3%	—	.1%
VOLTAGE INFLUENCE 105-125 Volts	—	—	—	—	—	—	.25%
MOVEMENT TYPE	Self Shielding		Shielded External Magnet				

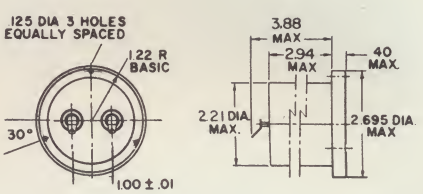
*Supplied with external potential transformer

External Potential Transformer
Supplied with Multi-Range Segmental Panel Meter.

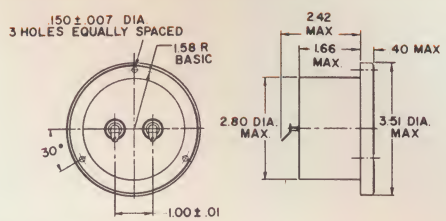
DIMENSIONS



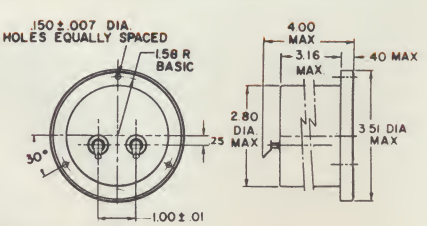
2½" Model 3222



2½" Model 3282

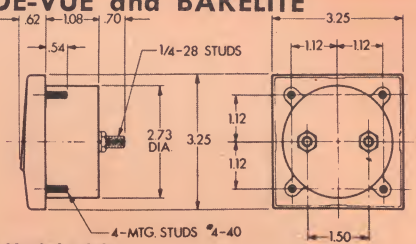


3½" Model 3223

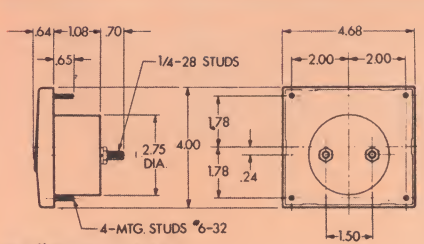


3½" Model 3283

WIDE-VUE and BAKELITE



3½" Model 1347



4½" Model 1349

STOCK PANEL METER RANGES AND PRICES

ROUND RUGGEDIZED SEGMENTAL PANEL METERS

ROUND PANEL METERS			2½" CASE STYLE		3½" CASE STYLE		4½" CASE STYLE	
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE	CAT. NO.	PRICE
AC VOLTMETERS			MODEL 3282		MODEL 3283		MODEL 3284	
100-130	115V	1.0%	16285	$ 77.10	16305	$ 70.95	16335	$ 78.75
105-125	115V	0.5%	16290	77.10	16310	70.95	16340	78.75
110-120	115V	0.3%	16295	77.10	16315	70.95	16345	78.75
DC VOLTMETERS			MODEL 3222		MODEL 3223		MODEL 3224	
24-30	27V	0.5%	16300	$ 66.00	16320	$ 60.15	16350	$ 67.65
FREQUENCY METERS†					MODEL 3283		MODEL 3284	
cps 380-420	cps 400	0.25%	—	—	16330	167.85	16360	175.50

SQUARE RUGGED-SEAL SEGMENTAL PANEL METERS

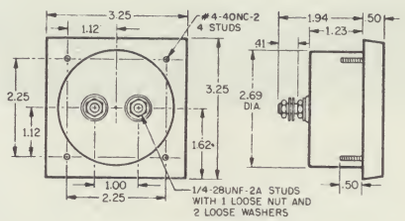
SQUARE PANEL METERS			3½" CASE STYLE		4½" CASE STYLE		4" x 6" CASE STYLE	
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE	CAT. NO.	PRICE
AC VOLTMETERS			MODEL 3383		MODEL 3384		MODEL 3386	
100-130	115V	1.0%	16365	$ 64.95	16395	$ 71.55	16425	$ 76.50
105-125	115V	0.5%	16370	64.95	16400	71.55	16430	76.50
110-120	115V	0.3%	16375	64.95	16405	71.55	16435	76.50
DC VOLTMETERS			MODEL 3323		MODEL 3324		MODEL 3326	
24-30	27V	0.5%	16380	$ 54.15	16410	$ 60.75	16440	$ 65.40
FREQUENCY METERS†			MODEL 3383		MODEL 3384		MODEL 3386	
cps 380-420	cps 400	0.25%	16390	163.20	16420	168.30	16450	173.25

BAKELITE SEGMENTAL PANEL METERS • Single, Multi-Range

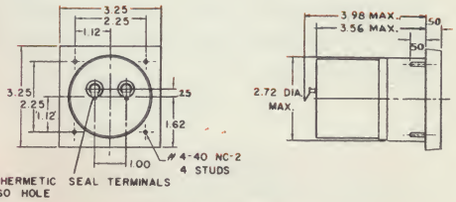
			3½" CASE STYLE		4½" CASE STYLES			
Range	Center Scale Value	Accuracy*	CAT. NO.	PRICE	CAT. NO.	PRICE	CAT. NO.	PRICE
AC VOLTMETERS			MODEL 1347		MODEL 1349		MODEL 49	
100-130	115 V	.5%	10152	$45.00	10155	$45.15	10151	$44.55
100-130 200-260 400-520	115 V 230 V 460 V	.5% .75% .75%	—	—	10157	$55.80	—	—

*Accuracy is in percent of center scale value.
†Frequency meters are checked @ the center scale frequency @ 25°C and 115 volts sine wave after 30 minute warmup. Accuracy after 1.0 minute warmup is 1.0%. At end scale indications, maximum error will be 0.5%.

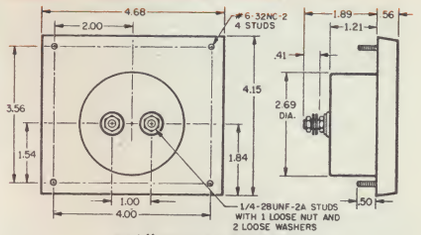
DIMENSIONS



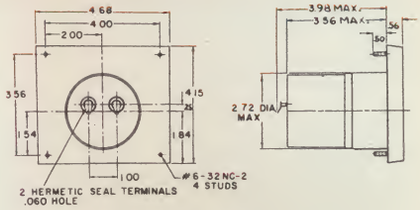
3½" Model 3323



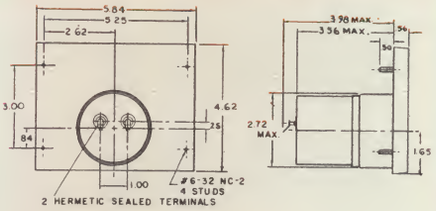
3½" Model 3383



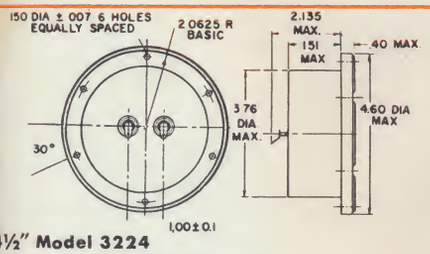
4½" Model 3324



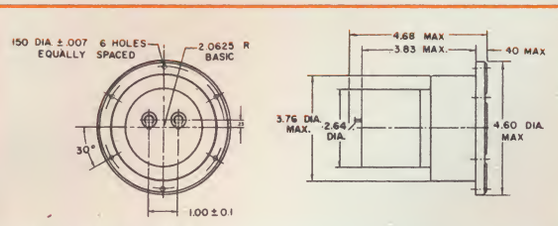
4½" Model 3384



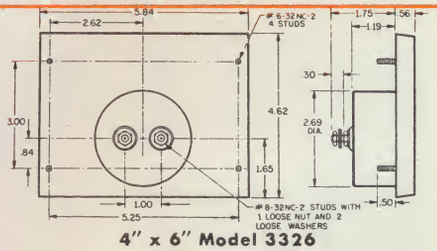
4" x 6" Model 3386



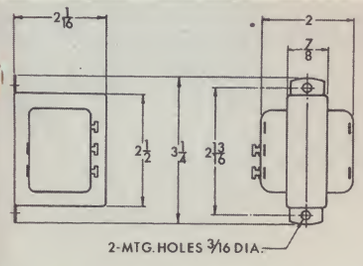
4½" Model 3224



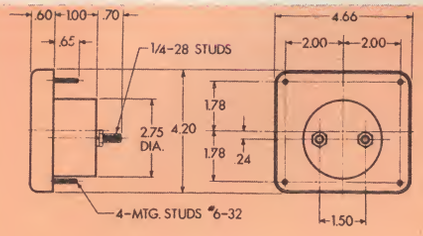
4½" Model 3284



4" x 6" Model 3326



External Potential Transformer



4½" Model 49

Simpson

EDGEWISE PANEL METERS
BARREL TYPE CONSTRUCTION
1½", 2½"

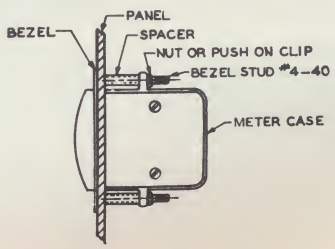
Where your panel designs call for making every square inch count, or where saving weight is important, Simpson edgewise meters solve many design problems. These meters are supplied with complete hardware which includes the bezel and two nuts. Mounting is fast and easy.

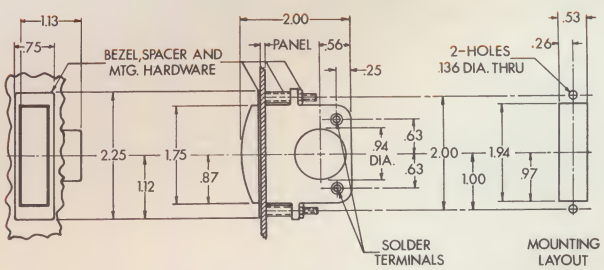
RANGE	APPROX. RESISTANCE (Ohms)	1½" CASE STYLE CAT. NO.	1½" CASE STYLE PRICE	2½" CASE STYLE CAT. NO.	2½" CASE STYLE PRICE
DC VOLTMETERS Self-Shielding Meter Movement		MODEL 1521		MODEL 1522	
0-10	1000 Ω/volt	10354	$15.45	10360	$16.50
0-15	1000 Ω/volt	10355	15.45	10370	16.50
0-25	1000 Ω/volt	10356	15.45	10375	16.50
0-50	1000 Ω/volt	10357	15.45	10380	16.50
0-150	1000 Ω/volt	10358	15.45	10390	16.50
0-500	2000 Ω/volt	10359	15.60	10410	16.80
DC MILLIAMMETERS Self-Shielding Meter Movement		MODEL 1521		MODEL 1522	
0-1	20	6811	$15.30	6710	$16.35
0-5	2.5	6812	15.30	6720	16.35
0-10	13.5	6813	15.30	6730	16.35
0-25	5.4	6815	15.90	6740	17.10
0-50	2.7	6816	15.90	6750	17.10
0-100	1.35	6817	15.90	6760	17.10
0-500	.27	6819	15.90	6810	17.10
DC AMMETERS Self-Shielding Meter Movement		MODEL 1521		MODEL 1522	
0-5	.010	—	—	3390	$17.40
0-25	.002	—	—	3420	17.40
DC MILLIVOLTMETERS Self-Shielding Meter Movement		MODEL 1521		MODEL 1522	
0-50	10 Ω	7013	$16.20	07011	$17.40
DC MICROAMMETERS Self-Shielding Meter Movement		MODEL 1521		MODEL 1522	
0-25	3150	4552†	$23.40	4560	$24.45
0-50	1800	4553	20.40	4570	21.45
0-100	1100	4554	18.00	4580	19.20
0-200	290	4555	16.20	4590	17.40
0-500	90	4556	15.75	4600	16.95
VOLUME LEVEL INDICATORS VU METERS Self-Shielding Meter Movement		MODEL 1541		MODEL 1542	
"A" SCALE		—	—	10500	$27.30
"B" SCALE		—	—	10570	27.30
AC VOLTMETERS Rectifier Type Self-Shielding Meter Movement		MODEL 1541		MODEL 1542	
0-150	1000 Ω/volt	10415	$20.10	10420	$21.15
0-300	1000 Ω/volt	—	—	10430	21.15

†Resistance of Model 1521 0-25 Mics is 5500 Ω.

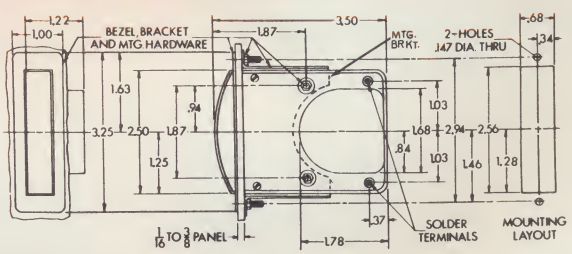
SPECIFICATIONS	Models 1½" 1521, 1541	2½" 1522, 1542
Accuracy	DC ± 2% of full scale; AC rectifier type ± 3% of full scale @ 25° and 60 cycle sine wave	
Movement Type	Self Shielding Meter Movement	
Scale Length	1⅜"	1⅞"
Pointer	Lance	
Case Construction	Dustproof, molded acrylic	
Terminals	Solder (ammeters—stud type)	
Net Weight	5 ounces	6½ ounces

MOUNTING DIAGRAMS 1½" and 2½" SIZES





1½" Models 1521, 1541



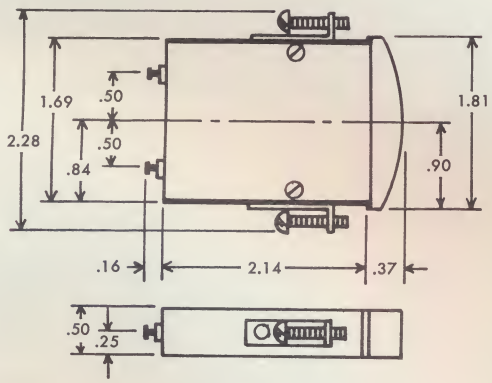
2½" Models 1522, 1542

EDGEWISE PANEL METERS
STACKS Horizontally or Vertically
1½", 2½"

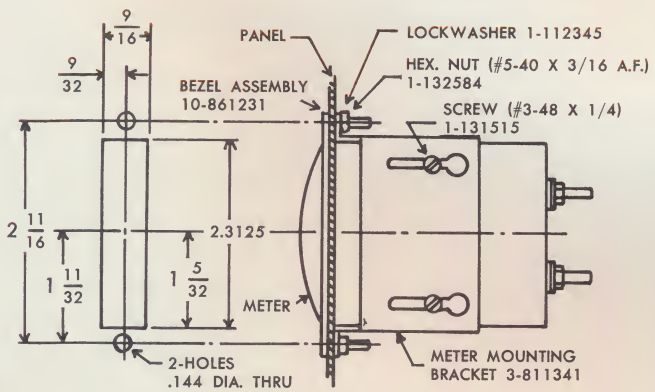
Simpson's new miniature edgewise panel meter has a unique Self-Shielding core magnet movement* that eliminates the need for the protruding barrel that is prevalent in other edgewise meter designs. It lends itself to a design that is sharp, modern, extremely compact and with a meter scale that extends nearly to the full width and height of the meter. An optimum scale display area allows for the use of large, easy-to-read numerals on a horizontal plane.

*Patent Pending

SPECIFICATIONS	Models	
	1½" 1921, 1941	2½" 1622, 1642
Accuracy	± 2% of full scale	
Movement Type	Self Shielding Core Magnet Movement	
Scale Length	1.370 inches	1.85 inches
Pointer	Lance	
Case Construction	Steel Housing with rustproof finish; plastic window; insulated terminals; dustproof construction.	
Terminals	Solder Type	6-32 studs
Dielectric	1500 Volts RMS	
Panel Cut Out	.525" x 1.718"	.562 x 2.312
Hardware	Removable brackets with clamping screws.	Bezel, bracket, lockwashers & nuts.
Net Weight	3½ ounces	4½ ounces
Shipping Weight	5½ ounces	6½ ounces



1½" Model 1921



2½" Model 1622

RANGE	APPROX. RESISTANCE (Ohms)	1½" CASE STYLE CAT. NO.	1½" CASE STYLE PRICE	2½" CASE STYLE CAT. NO.	2½" CASE STYLE PRICE
DC VOLTMETERS Self-Shielding Meter Movement		MODEL 1921		MODEL 1622	
0-10	5000 Ω/volt	18000•	$18.45	18006•	$19.50
0-15	5000 Ω/volt	18001•	18.45	18007•	19.50
0-25	5000 Ω/volt	18002•	18.45	18008•	19.50
0-50	5000 Ω/volt	18003•	18.45	18009•	19.50
0-150	5000 Ω/volt	18004•	18.45	18010•	19.50
0-500	—	—	—	18011•	19.65
DC MILLIAMMETERS Self-Shielding Meter Movement		MODEL 1921		MODEL 1622	
0-1	18	18012•	$18.15	18019•	$19.35
0-5	2	18013•	18.15	18020•	19.35
0-10	5	18014•	18.15	18021•	19.35
0-25	2	18015•	18.90	18022•	20.10
0-50	1	18016•	18.90	18023•	20.10
0-100	.5	18017•	18.90	18024•	20.10
0-500	.1	18018•	18.90	18025•	20.10
DC MILLIVOLTMETERS Self-Shielding Meter Movement		MODEL 1921		MODEL 1622	
0-50	400 Ω/volt	18028•	$19.20	18029•	$20.40
DC MICROAMMETERS Self-Shielding Meter Movement		MODEL 1921		MODEL 1622	
0-25	7760	18030•	$23.70	18035•	$24.75
0-50	2020	18031•	23.40	18036•	24.45
0-100	1060	18032•	21.00	18037•	22.20
0-200	310	18033•	19.20	18038•	20.40
0-500	63	18034•	18.75	18039•	19.80
AC VOLTMETERS Rectifier Type Self-Shielding Meter Movement		MODEL 1941		MODEL 1642	
0-150	5000 Ω/volt	18042•	$22.95	18043•	$24.15

METER RELAYS
contactless
4½″

Contactless Type
4½″ Model 3324XA, 3344XA

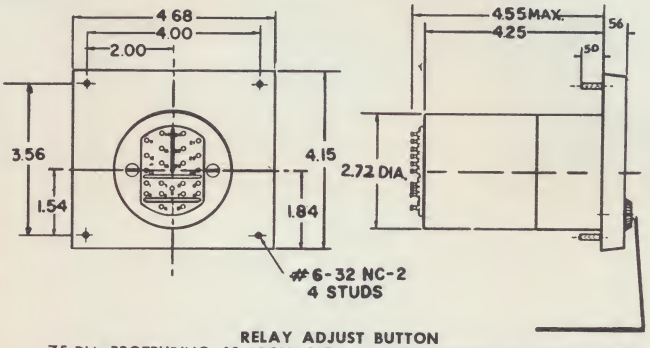
CONTACTLESS TYPE—MODEL 3324XA

Contactless types are intended for those applications in which utmost reliability of operation on small differential or small power is desired. Set points are adjusted thru external, front adjusted gear drive. Set point is indicated by separate lance pointers. Sensing is accomplished thru an infinite life lamp and photoconductors. A solid state switching circuit and D.P.D.T. slave relay are provided (internally) for each control point. Slave relays will switch 10 amperes @ 115 Volts A.C.

Single or Dual Control

Model 3324XA

for alarm control or limit applications on equipment designed for unattended applications



RELAY ADJUST BUTTON
.75 DIA. PROTRUDING .18 ABOVE BEZEL, LOCATED .97 BELOW METER CENTER LINE, AND .98 LEFT AND/OR RIGHT OF THE METER CENTER LINE AS APPLICABLE.

SPECIFICATIONS

CALIBRATION ACCURACY: ± 2% of Full Scale.

CONTROL POINT ADJUSTMENT: Control points are externally adjustable over 95% of the scale arc. Control point indication is within 2% of actual switching.

CONTROL POINT DIFFERENTIAL: Difference between "on" and "off" is within .5% of Full Scale.

POWER REQUIREMENTS: 115 Volts A.C. 50-500 CPS. D.C. power required for sensing and switching is provided by the external power module furnished with the relay.

OUTPUT: D.P.D.T. relay contacts for each control point. Contacts rated @ 10 amperes, 115 A.C. resistive.

METER INDICATION: Continuous, unaffected by control point setting.

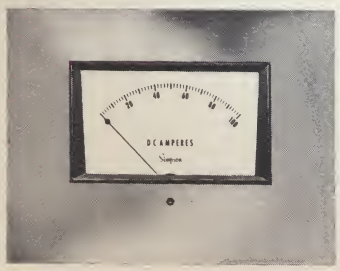
CONTROL CIRCUITRY: Fail-safe. Both slave relays "open" in event of power failure.

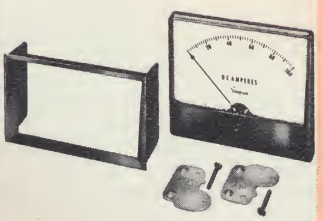
RANGES AND PRICES — CONTACTLESS TYPE—MODEL 3324XA

RANGE	SINGLE CONTROL Resist. Approx. Ohms	Cat. No.	Price	DOUBLE CONTROL Cat. No.	Price
DC MICROAMMETERS					
0-50	3000	16451	$99.00	16470	$136.35
0-100	1300	16452	96.15	16471	133.65
0-200	570	16453	96.15	16472	133.50
0-500	220	16454	96.15	16473	133.50
DC MILLIAMMETER					
0-1	80	16455	95.10	16474	132.45
DC MILLIVOLTMETER					
0-50	10	16460	95.40	16480	132.75
AC AMMETER					
0-5†	.5 VA Max.	16465	105.00	16485	148.00

†Self Contained

NEW 3½″ and 4½″ BEHIND PANEL BEZELS





WIDE VUE BEZEL KITS

Meter Size	For Models	Part No.	Price
3½″	1327, 1337, 1347, 1357	1253	$1.65
4½″	1329, 1339, 1349 1359, 1379	1123	$1.65

NEW 3½″ and 4½″ WIDE-VUE MOUNTING BEZEL KITS

For that modern, streamlined appearance—Mounting Bezels, made for wide-vue panel meters and interchangeable with flush and recess type meters of many popular styles. Designed for behind panel mounting on material thickness of ⅛″ to 3/16″. Groove and flange style construction. Each bezel of die cast metal has an attractive black enamel satin finish and is supplied with mounting hardware and template.

Bezel Mount Kit consists of bezel brackets and screws and installation instructions.

Dual Control
Model 29XA

for alarm control or limit applications
on equipment designed for unattended applications

CONTACT TYPE—MODEL 29XA

Contact making types are well suited to most general purpose applications in which cost and reasonable reliability are primary considerations. The contacts are the non-locking type and may be positioned along the scale arc by an external, front adjusted gear drive. Styling and mounting dimensions are designated as the Model 29XA.

SPECIFICATIONS

GENERAL: Model 29XA Relays are of the D'Arsonval Type. Externally adjusted limit setting contacts are non-locking and intended for circuits with external locking provisions or for light duty non-locking applications.

CALIBRATION: Accuracies ± 2% of full scale.

CONTACTS: Gold Alloy. For use @ 15 volts DC, 10 milliamperes maximum, on resistive or diode protected inductive loads.

CONTACT ADJUSTMENT: Contacts are externally adjustable over 95° of 100° scale arc, and within 5° of each other. The pointer will indicate the contact make position within 2° of actual contact intercept.

CONTACT DIFFERENTIAL: Normally, contacts will close within 2% of full scale value and break within 10% of full scale value.

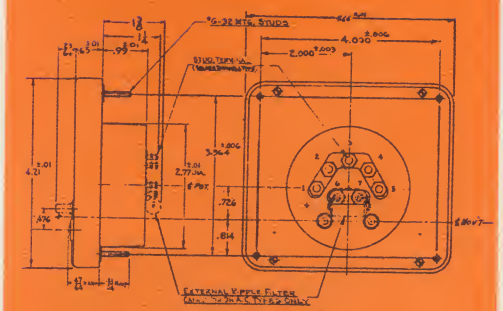
INSULATION: Breakdown 300 volts AC from Relay contacts to meter circuit. 3 KV AC from Relay terminals to mounting panel. (All Tests at 60 cycles.)

RANGES AND PRICES CONTACT TYPE—MODEL 29XA

RANGE	DUAL CONTROL Resist. Approx. Ohms	Cat. No.	Price
DC MICROAMMETERS			
0-50	5200	7032	$48.60
0-100	1800	7034	46.50
0-200	1000	7036	43.65
0-500	280	7038	42.90
DC MILLIAMMETER			
0-1	140	7040	42.00
DC MILLIVOLTMETER			
0-50	10	7050	42.15

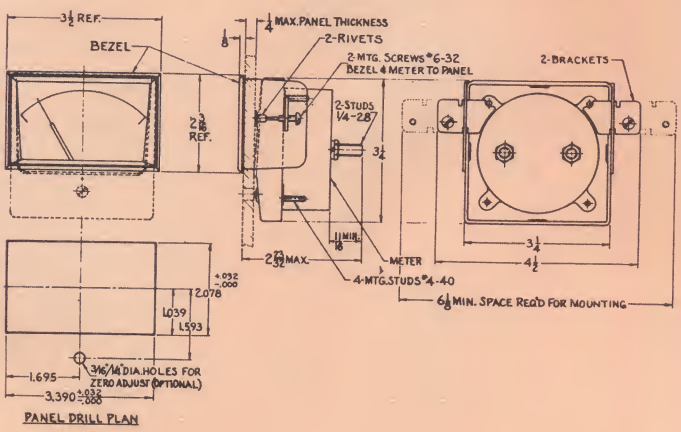
METER RELAYS contact type 4½"

Contact Type 4½" Model 29XA

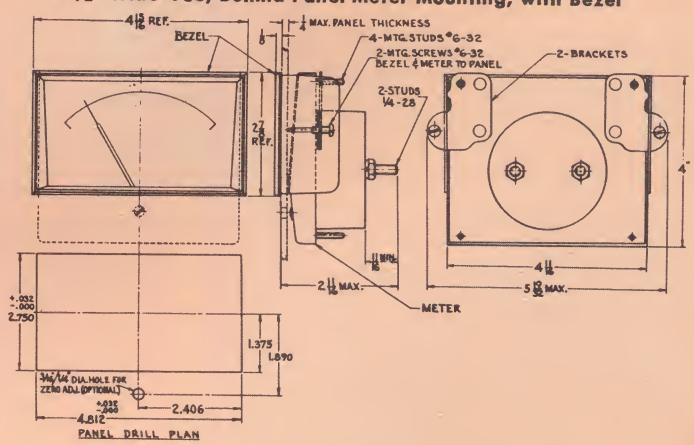


4½" Model 29XA

3½" Wide-Vue, Behind Panel Meter Mounting, with Bezel



4½" Wide-Vue, Behind Panel Meter Mounting, with Bezel



"RUGGED SEAL" 3½", 4½", 4" x 6"

- SQUARE
- RECTANGULAR

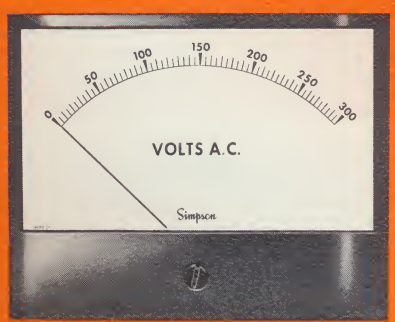
STOCK METERS

NEW SIMPSON "RUGGED SEAL" PANEL METERS

This new line of metal cased panel instruments is ideal for use in field test equipment or wherever rigorous environmental conditions are encountered. They are completely sealed, commercially ruggedized, glass window, metal cased and shielded, not affected by steel panel mounting.

3½" Models 3323, 3383

4½" Models 3324, 3384



4" x 6" Models 3326, 3386

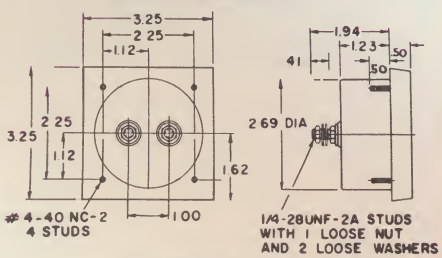
SPECIFICATIONS

SIZE	MODEL NO.	ACCURACY	SCALE LENGTH
3½"	3323, 3343*	DC METERS: ±2% F. S.	2.9" (74 mm)
4½"	3324, 3344*	AC METERS: ±3% F. S.	3.9" (101 mm)
4" x 6"	3326, 3346*	@ 25°C. and 60 cy. Sine Wave	4.7" (120 mm)

*All AC Meters are rectifier type. AC Voltmeters, Milliammeters and Microammeters maintain their rated accuracy over a range of 25 through 2500 cps. AC Ammeters maintain their accuracy over a range of 55 through 125 cps.

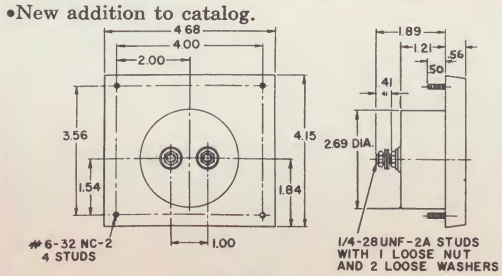
RANGE	APPROX. RESISTANCE (Ohms)	3½" CASE STYLE CAT. NO.	3½" PRICE	4½" CASE STYLE CAT. NO.	4½" PRICE	4" x 6" CASE STYLE CAT. NO.	4" x 6" PRICE
DC VOLTMETERS Shielded Case not affected by magnetic Mounting		MODEL 3323		MODEL 3324		MODEL 3326	
0-1.5	1000 OHMS PER VOLT	16000	$18.90	16095	$20.55	16190	$22.50
0-10		16005	18.90	16100	20.55	16195	22.50
0-15		16010	18.90	16105	20.55	16200	22.50
0-25		16015	18.90	16110	20.55	16205	22.50
0-50		16020	18.90	16115	20.55	16210	22.50
0-100		16025	18.90	16120	20.55	16215	22.50
0-500		16030	18.90	16125	20.55	16220	22.50
DC MILLIVOLTMETERS Shielded Case not affected by magnetic Mounting		MODEL 3323		MODEL 3324		MODEL 3326	
0-50	10	16062	19.00	16157	21.00	16252	23.00
DC AMMETERS Shielded Case not affected by magnetic Mounting		MODEL 3323		MODEL 3324		MODEL 3326	
0-5	INTERNAL SHUNT 75 MV MAX.	16035	$19.20	16130	$20.85	16225	$23.10
0-10		16040	19.20	16135	20.85	16230	23.10
DC MILLIAMMETERS Shielded Case not affected by magnetic Mounting		MODEL 3323		MODEL 3324		MODEL 3326	
0-1	80Ω	16045	$18.15	16140	$19.80	16235	$22.05
0-100	.5Ω	16050	19.50	16145	20.85	16240	23.10
DC MICROAMMETERS Shielded Case not affected by magnetic Mounting		MODEL 3323		MODEL 3324		MODEL 3326	
0-50	3000Ω	16055	$24.45	16150	$26.10	16245	$28.65
0-100	1300Ω	16060	22.20	16155	23.85	16250	26.40
AC VOLTMETERS (Rectifier Type) Shielded Case not affected by magnetic Mounting		MODEL 3343		MODEL 3344		MODEL 3346	
0-150	1000 OHMS PER VOLT	16065	$22.80	16160	$24.15	16255	$26.40
0-300		16070	22.80	16165	24.15	16260	26.40
AC AMMETERS (Rectifier Type) Shielded Case not affected by magnetic Mounting		MODEL 3343		MODEL 3344		MODEL 3346	
0-1	Internal Transformer Burden 0.5 VA Maximum	16075	$28.50	16170	$29.70	16265	$32.10
0-5		16080	28.50	16175	29.70	16270	32.10
AC MILLIAMMETERS (Rectifier Type) Shielded Case not affected by magnetic Mounting		MODEL 3343		MODEL 3344		MODEL 3346	
0-1	600Ω	16085	$22.50	16180	$23.85	16275	$25.80
AC MICROAMMETERS (Rectifier Type) Shielded Case not affected by magnetic Mounting		MODEL 3343		MODEL 3344		MODEL 3346	
0-100	4000Ω	16090	$23.85	16185	$24.75	16280	$27.15

DIMENSIONS

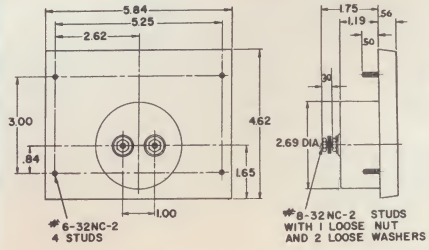


3½" Models 3323, 3343

•New addition to catalog.



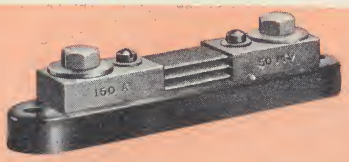
4½" Models 3324, 3344



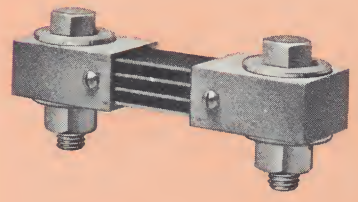
4" x 6" Models 3326, 3346

Simpson

Shunts • Current Transformers • External Multipliers

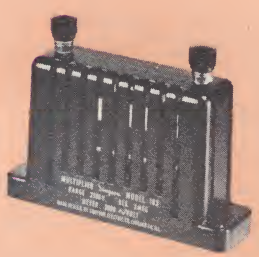


BAKELITE BASE IS SUPPLIED UP TO 200 AMPERES



SWITCHBOARD TYPE 100 THROUGH 7000 AMPS

CURRENT TRANSFORMER



EXTERNAL MULTIPLIER MODEL 183
For Usage
See Voltmeter Footnotes

EXTERNAL PORTABLE AND SWITCHBOARD SHUNTS— FOR USE WITH DC AMMETERS

These shunts are adjusted for a 50 millivolt drop for use with switchboard and panel ammeters where external shunts are required. Portable shunts are bakelite base and supplied up to 200 amperes. (Prices shown include 5′ leads.) Accuracy ± 1%.

PORTABLE SHUNTS

Amps.	Part No.	Price
1	6700	$8.70
5	6703	8.70
10	6704	8.70
15	6705	8.70
25	6707	8.70
30	6708	8.70
50	6709	8.70
75	6711	8.70
100	6713	8.70
150	6714	8.70
200	6715	8.70

SWITCHBOARD SHUNTS

Amps.	Part No.	Price
100	6500	$8.70
150	6503	9.30
200	6504	9.30
250	6505	9.30
300	6506	9.30
400	6507	11.40
500	6508	13.50
600	6509	16.05
750	6510	20.55
800	6511	21.75
1000	6512	26.40
1200	6513	31.55
1500	6514	39.30
2000	6515	44.25
2500	6516	55.35
3000	6517	65.70
3500	6518	91.80
4000	6519	110.25
4500	6520	120.85
5000	6521	135.75
6000	6522	149.85
7000	6523	180.00

CURRENT TRANSFORMERS— FOR USE WITH AC AMMETERS

These current transformers are of the inserted one turn primary type for use with switchboard and panel ammeters where external transformers are required.

AMPERE RANGES Primary	Secondary	Part No.	Price
50	5	1293	$22.20
75	5	1306	16.35
100	5	1297	13.50
150	5	1298	12.00
200	5	1299	12.00
250	5	1313	13.50
300	5	1300	13.50
400	5	1305	15.00
500	5	1301	16.35
600	5	2303	16.35
750	5	2459	19.20
1000	5	2304	20.70

MODEL 183 MULTIPLIER SERIES

Simpson External Multipliers are available for immediate delivery from your local distributor in the ranges listed below. Other intermediate ranges are available on special order: DC Volts to 5000; AC Volts to 1000. Send your specifications for a quotation.

AC VOLTS—166 Ohms/Volt

Range	Multiplier Resistance Ohms	Multiplier Volt. Drop	Meter Volt. Drop	Part No.	Price
0-500	58,333	350	150	8562	$6.10
0-600	75,000	450	150	8563	7.00
0-750	100,000	600	150	8564	7.75
0-1000	141,666	850	150	8565	9.25

DC VOLTS—2000 Ohms/Volt

Range	Multiplier Resistance Megohms	Meter Sensitivity DC UA	Part No.	Price
0-500	1	500	8552	$5.05
0-750	1.5	500	8553	5.35
0-1000	2	500	8554	5.35
0-1250	2.5	500	8555	5.35
0-1500	3	500	8556	5.65
0-2000	4	500	8557	5.65
0-2500	5	500	8558	5.80
0-3000	6	500	8559	5.80
0-4000	8	500	8560	6.25
0-5000	10	500	8561	6.85

SIMPSON TEST EQUIPMENT

Add-a-tester Adapters Expands the famous 260 or 270 VOM as the need arises.

Handiscope Model 466

100,000 ohms per volt AC-DC Volt-Ohm-Microammeter Model 269

WORLD'S LARGEST MANUFACTURER OF ELECTRONIC TEST EQUIPMENT

Write for bulletin 2072

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Escondido, California 92026
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ELGIN PLANT

LAC DU FLAMBEAU PLANT

KINZIE ST. PLANT

AURORA PLANT

MERCER PLANT

GLOSSARY OF TERMS

INSTRUMENTS THAT STAY ACCURATE

The information in this section is intended to give a basic understanding of the terms commonly used in the Electrical Indicating Instrument Industry. Some of the information, as noted*, has been reproduced with permission from the American Standards Association.

ACCURACY TOLERANCE

The measure of a meter's ability to provide indications corresponding to the absolute value of electrical energy applied.

Accuracy is customarily expressed as a percentage of full scale value (*see Note 1*). To determine the degree of accuracy of a meter at a given point, the rated full scale value, the actual value of energy applied and the value indicated by the meter must be known.

Note 1. Full scale value in meters with zero at a point other than end scale is the arithmetic sum of the two end scale values.

The formula for expression of a meter's accuracy, in percent of full scale, at a point is:

$$\text{Accuracy} = \frac{I - A}{F.S.} \times 100$$

I = Value Indicated by Meter
A = Actual Value of energy applied to meter
F.S. = Rated full scale value of meter

Note: Disregard the sign in determining the degree of accuracy.

Examples: A 0-5 milliamp meter has a current of 4.30 milliamps applied to it. The meter reads 4.25 milliamps. The meter accuracy at that point is:

1. $\%\ \text{Accuracy} = \frac{4.25 - 4.30}{5.00} \times 100$
2. $\%\ \text{Accuracy} = \frac{.05}{5.00} \times 100$
3. $\%\ \text{Accuracy} = .01 \times 100$
4. Accuracy = 1.0%

A 5-0-10 voltmeter has 7.0 volts applied to it. The meter reads 7.2 volts. The meter accuracy at that point is:

1. $\%\ \text{Accuracy} = \frac{7.2 - 7.0}{5 + 10} \times 100$
2. $\%\ \text{Accuracy} = \frac{.2}{15} \times 100$
3. $\%\ \text{Accuracy} = .0133 \times 100$
4. Accuracy = 1.33%

AIR DAMPED

A construction utilizing an air vane to achieve movement damping. This vane is usually housed in a closed chamber to increase the damping action.

AVERAGE VOLTAGE

The sum of the instantaneous voltages in a half cycle wave shape divided by the number of instantaneous voltages. In a sine wave, the average voltage is equal to 0.637 times the peak voltage.

BALANCE (Position Influence)*

Position influence is the change in the indication of an instrument which is caused solely by a position departure from the normal operating position.

DAMPING

Damping of an instrument is the term applied to its performance to denote the manner in which the pointer settles to its steady indication after a change in the value of the measured quantity.

Two general classes of damped motion are distinguished as follows:

(a) Periodic, in which the pointer oscillates about the final position before coming to rest.
(b) Aperiodic, in which the pointer comes to rest without overshooting the rest position. Sometimes referred to as overdamping.

The point of change between periodic and aperiodic damping is called critical damping.

Note: An instrument is considered to be critically damped when overshoot is present but does not exceed an amount equal to one half the rated accuracy of the instruments.

DAMPING FACTOR

The ratio of the steady deflection to the difference between maximum momentary deflection and steady deflection. The deflections are produced by sudden application of a constant value of electrical energy and are measured in angular degrees. Unless otherwise specified, end scale deflection is used as maximum momentary deflection. To determine the damping factor, the total angular deflection from zero to end scale must be known.† These angles can then be substituted in the formula:

$$\text{Damping Factor} = \frac{D_s}{D_m - D_s}$$

Where: D_s = Steady state deflection in angular degrees

D_m = End scale deflection in angular degrees

†In linear scale meters, very close approximations can be made using the scale graduations to determine the deflection angles.

Example: A 0-100 D.C. voltmeter has a current suddenly applied that causes a momentary end scale deflection. After the pointer settles to a rest position, the meter reads 82 volts. The damping factor is:

1. $DF = \frac{82}{100 - 82}$
2. $DF = \frac{82}{18}$
3. DF = 4.5

DECIBEL OR D.B.

A decibel is a logarithmic unit for the expression of the ratios of two amounts of power. The number of decibels denoting such a ratio is equal to 10 times the LOG_{10} of the ratio.

$$N = 10\ LOG_{10} \frac{P1}{P2}$$

N = Number of Decibels
P1 = Initial Power Level
P2 = New Power Level

END SCALE VALUE*

The end scale value of an instrument is the value of the actuating electrical quantity that corresponds to end scale indication. When zero is not at the end or at the electrical center of the scale, the higher value is taken.

Note: Certain instruments such as power-factor meters, ohmmeters, etc. are necessarily excepted from this definition.

EXPANDED SCALE METER

A meter in which the ratio of deflection per unit of applied energy becomes greater as the energy approaches a specified value.

FREQUENCY INFLUENCE†

The change in indication due solely to a frequency change of the applied energy from a specified frequency.

Frequency influence is usually expressed as a percentage change of full scale value** for a specified frequency change.

†Does not apply to frequency meters.

**The full-scale value is equal to the largest value of the actuating electrical quantity which can be indicated on the scale or, in the case of instruments having their zero between the ends of the scale, the full scale value is the arithmetic sum of the values of the actuating electrical quantity corresponding to the two ends of the scale.

*This material is reproduced from the American Standard Requirements for Electrical Indicating Instruments, C39.1—1959, copyrighted by ASA, copies of which may be purchased from the American Standards Association at 10 East 40th Street, New York 16, New York.

FRICTION

The difference between tapped and untapped meter readings due to the combination of pivot friction and pivot roll. Friction is usually checked by making a substantial change in the applied energy (5-10%) at a sufficiently slow rate so that no overshoot occurs. The meter indication is then noted and, maintaining the same energy level, the meter is tapped. The difference between the two indications is the friction error. It is customary to express the error as a percentage of full scale value.

Since friction is influenced by meter position, the position(s) in which the observation is made must be stated.

FULL SCALE VALUE*

The full scale value is equal to the largest value of the actuating electrical quantity which can be indicated on the scale or, in the case of instruments having their zero between the ends of the scale, the full-scale value is the arithmetic sum of the values of the actuating electrical quantity corresponding to the two ends of the scale.

Note: Certain instruments such as power-factor meters, ohmmeters, etc. are necessarily excepted from this definition.

IMPEDANCE

The apparent resistance, expressed in ohms, offered by an alternating current circuit to the passage of electrical energy.

Since frequency is one of the factors affecting impedance, the frequency of applied energy must be specified.

LOGARITHMIC SCALE METER

A meter having deflections proportional to the logarithms of the applied energies.

MAGNETIC INFLUENCE*

The magnetic-platform influence is the change in indication caused solely by the presence of a magnetic platform on which the instrument is placed.

Note: For the purposes of this standard, the influence is determined as the percentage change in indication when the instrument is placed in its normal operating position on a demagnetized steel plate, extending at least 6 inches beyond the instrument on all sides, and at least 0.25 inch thick as compared with its indication when isolated from extraneous magnetic material.

MAGNETICALLY DAMPED

Meters in which the damping is achieved by moving a metal vane through a magnetic field. This motion induces currents in the vane which sets up magnetic fields opposing those of the stationary magnets thus tending to bring the pointer to rest. This type of damping is found in many quality moving iron and dynamometer type instruments.

METER RESISTANCE

Resistance of the meter as measured at the terminals at a given reference temperature.

When applied to rectifier type meters, the frequency and wave shape of the applied energy, as well as the indicated value at which the measurement is to be made, must be specified.

Normally, the resistance of a rectifier type meter is measured by the voltage doubling method, outlined below:

The meter is energized to the chosen scale position at which the resistance is to be measured. The voltage required to achieve this deflection is noted. A non-inductive, variable resistor is then connected in series with the meter and a voltage twice that of the previously noted voltage is applied. The resistor is then adjusted until the meter again deflects to the original scale position. The meter resistance is then considered to be equal to the value of the adjusted resistor.

OVERSHOOT*

Overshoot is the ratio of the overtravel of the indicator beyond a new steady deflection to the change in steady deflection when a new constant value of the measured quantity is suddenly applied. The overtravel and deflection are determined in angular measure and the overshoot is usually expressed as a percentage.

Note 1. Since, in some instruments, the ratio depends on the magnitude of the deflection, a value corresponding to an initial deflection from zero to end scale is used in determining the overshoot for rating purposes.

PEAK VOLTAGE

The maximum value present in a varying or alternating voltage. This value may be either positive or negative.

POWER CONSUMPTION

The power necessary to produce end scale deflection of the meter. Power consumption may be expressed in wattage, resistance, voltage, volt-amperes, impedance or current.

POWER FACTOR

The cosine of the phase angle between an alternating voltage and current in an electrical circuit.

RECTIFIER TYPE INSTRUMENT

A combination of an instrument sensitive to direct current and a rectifying means whereby alternating current (or voltage) may be measured.

REPEATABILITY

The measure of a meter's ability to provide repeat readings with the application of a given energy. It is customary to express repeatability as a percentage of full scale value*.

*See definition of full scale value and end scale value in this section.

Repeatability at a point is usually measured by increasing the applied energy to a given value. The increase is made at a sufficiently slow rate so that no overshoot occurs. The meter deflection is then noted. The energy is then increased at least 10% and then slowly reduced until the given value is again reached. The new meter deflection is noted. The difference in the two deflections is the repeatability error of the unit at the given value.

A formula for determining a meter's repeatability at a given point is:

$$\text{Repeatability} = \frac{D_2 - D_1}{D_{FS}} \times 100$$

D_1 = Deflection, in angular degrees, noted after increasing energy

D_2 = Deflection, in angular degrees, noted after decreasing energy

D_{FS} = Full scale deflection in angular degrees

Example: A 90 degree meter has an energy slowly applied. When the chosen energy level is reached, a deflection of 68 degrees is observed. After increasing the energy by 10%, it is slowly reduced to the originally chosen level. A new deflection of 68.5 degrees is observed. The repeatability of the meter at the chosen value is:

1. $\%\ \text{Repeatability} = \frac{68.5 - 68.0}{90} \times 100$
2. $\%\ \text{Repeatability} = \frac{.5}{90} \times 100$
3. $\%\ \text{Repeatability} = \frac{50}{90}$
4. $\text{Repeatability} = .555\%$

RESPONSE TIME*

The response time is the time required after an abrupt change has occurred in the measured quantity to a new constant value until the pointer, or indicating means, has first come to apparent rest in its new position.

Note 1. Since in some instruments, the response time depends on the magnitude of the deflection, a value corresponding to an initial deflection from zero scale to end scale is used in determining the response time for rating purposes.

Note 2. The pointer is at apparent rest when it remains within a range on either side of its final position equal to one half the accuracy rating, when determined as specified in *Note 1.*

R.M.S. VOLTAGE

The effective value of a varying or alternating voltage. The effective value is that value which would produce the same power loss as if a continuous voltage were applied to a pure resistance. In sine wave voltages, the R.M.S. voltage is equal to 0.707 times the peak voltage.

SCALE LENGTH

The length of the imaginary arc described by the tip of the pointer or other indicating means used. If the pointer tip extends beyond the scale markings, the pointer shall be considered to end at the outer edge of the shortest scale mark. On multi scale instruments, the scale length shall be considered to be equal to the length of the longest scale.

SELF-CONTAINED INSTRUMENT

A self-contained instrument is one in which no accessory items are required to perform its intended functions(s)*. If not specified, a manufacturer may optionally supply either a self contained meter or one with external accessories.

*If a meter is specified "0-500 D.C. Microamperes, with scale reading 0-1000 Volts," a 500 ua meter without an internal resistor would be considered self-contained since the established intent is for the meter to operate as a microammeter.

If the specification had read, "0-1000 D.C. Volt, 2000 ohms per volt," the intent is for operation as a voltmeter. A meter having an internal resistor would be necessary to meet the specification. A 500 microampere meter without an internal resistor would not be considered self-contained.

SQUARE LAW SCALE METER

A meter in which the deflection is proportional to the square of the applied energies.

SYMMETRY (Applies only to off-set zero meters)

The measure of a meter's ability to provide corresponding indications on each side of zero when the polarity of the applied energy is reversed.

Symmetry error is customarily expressed as a percentage of *actual* full scale value.*

*See definition of full scale value in this section.

To determine the symmetry error at a point, the actual full scale energy, the actual energy necessary to cause deflection to the selected point and the actual energy necessary to cause deflection to the corresponding point on the other side of zero must be known.

The symmetry error for a selected point or points can be determined by use of the formula:

$$\%\ \text{Symmetry error} = \frac{I_x - I_y}{I_{FS}} \times 100$$

Note: Disregard the sign in determining the degree of symmetry.

I_x = Actual energy for deflection to a selected point.

I_y = Actual energy for deflection to the corresponding indication.

I_{FS} = Actual energy for full scale deflection.

Example: A 10-0-10 Voltmeter requires 10.3-0-10.6 Volts for end scale deflections. Application of 8.1 volts is necessary to produce an indication of 8.0 Volts on the right side and 8.25 volts is necessary to cause a corresponding indication on the left side. The symmetry error at the 8.0 Volt point is:

1. $\%$ Symmetry Error $= \dfrac{8.1 - 8.25}{10.3 + 10.6} \times 100$
2. $\%$ Symmetry Error $= \dfrac{.15}{20.9} \times 100$
3. Symmetry Error $= .72\%$

The symmetry error at the 10.0 Volt point is:

1. $\%$ Symmetry Error $= \dfrac{10.3 - 10.6}{10.3 + 10.6} \times 100$
2. $\%$ Symmetry Error $= \dfrac{.3}{20.9} \times 100$
3. Symmetry Error $= 1.44\%$

TEMPERATURE INFLUENCE

The change in indication due solely to a change in ambient temperature from a specified reference temperature.

Temperature influence is usually expressed as a percentage of full scale value (*see NOTE 1* under full scale value definition this section) for a specified temperature change.

TORQUE

A rotational moment applied to the moving system.

At a steady state deflection, the mechanically applied torque is equal and opposite to the electrically developed torque.

Torque is usually expressed in millimeter grams for a given angular deflection.

TORQUE TO WEIGHT RATIO

The ratio of the mechanical torque at a given angular deflection to the weight of the moving system. The torque may be expressed in millimeter grams at 360 degrees and the weight may be expressed in grams.

This ratio is sometimes arbitrarily referred to as the "figure of merit."

TRACKING

The ability of an instrument to indicate at the division line being checked when energized by corresponding proportional values of actual end scale excitation, expressed as a percentage of actual end scale value. The tracking error test is performed by initially setting the pointer on zero using the zero corrector, then applying sufficient excitation to produce end scale deflection precisely. The excitation is then reduced to amounts which will produce deflection to the previously selected scale markings. Tap the instrument before setting zero and before each reading.

$$\text{Tracking error}\ \% = \frac{I_A - I_R}{I_{ES}} \times 100$$

I_A = actual value of excitation required to produce the selected deflection

I_R = the value of excitation for the selected deflection, obtained by proportional values of actual end scale excitation

I_{ES} = actual value of excitation for end scale deflection.

VOLUME UNIT OR V.U.

A volume unit is a logarithmic unit for the expression of the ratios of two amounts of power. It is equal to a decibel when a reference level of one milliwatt at 600 ohms is used.

VOLT AMPERE(S)

The product of the R.M.S. voltage applied to a circuit and the R.M.S. current, in amperes, flowing through it.

WAVEFORM INFLUENCE

The change in indication, caused solely by a change in waveform from a specified waveform, of the applied current and/or voltage.

The waveform influence is usually expressed as a percentage change of full scale value (*see NOTE 1* under full scale value definition this section) for a specified waveform change.

Simpson 260® The World's Best Selling VOM Family of Instruments

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260-5M.....$57.00

Model 261.....$65.00

260-5P.....$85.00

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NEW IMPROVED 260®* VOLT-OHM-MILLIAMMETER continues as the World's largest selling VOM. Over a million instruments have been sold. Known for its reliability and ruggedness, the 260 has been continually improved to meet changing market conditions. Among the many built-in features of the 260 are:

- **Movement Overload Protection.**
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- **Increased linearity and stability.**
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- **Individual 260 instruments with special features and accuracies (Identified as 250, 255, 260-5, 5M, 261 and 270).**

Complete with test leads No. 7500 and operator's manual.

260-5.....**$55.00**
260-5M (Mirror Scale).....**$57.00**

ROLLTOP VOMs

260-5RT.....**$61.00**
260-5MRT.....**$63.00**

NEW PROTECTED 260-5P* AC/DC VOLT-OHM-MILLIAMMETER

This Simpson Instrument has built-in Meter and Tester protection approaching 100% which virtually makes this VOM GOOF PROOF. The 260-5P will be of particular value in situations where the instrument may be used by inexperienced people; students, apprentices, and new employees. Technicians, too, will find the instrument ideal for exploring unfamiliar equipment, especially when lack of a schematic diagram poses the hazard of encountering unexpected high voltages when making tests.

Combined protection not found in any other VOM.

1. Reset button pops out to indicate overload.
2. You cannot reset circuits while overload is present.
3. Protective circuit does not require massive overloads which can cause hidden damage to the instrument.
4. All ranges are protected except those not feasible in a portable instrument —1000 and 5000 volts DC and AC; 10 Amps DC.

The 260-5P has the same ranges and takes the same accessories as the Simpson 260-5 VOM.

Complete with test leads 7500 and operator's manual.

260-5P Protected (GOOF PROOF).....**$85.00**
260-5PRT Protected Roll Top.....**$91.00**

HIGH ACCURACY 261* and 270*-3 AC/DC VOLT-OHM-MILLIAMMETERS

For those test VOM applications requiring higher accuracies, Simpson has combined the latest in VOM design with strict manufacturing controls to produce two popular VOM's of the 260 family, 261 and 270 Series 3.

These features include:

1. A new self-shielded annular meter movement.
2. Special calibration circuit that increases accuracy.
3. Diode overload protection. (Prevents movement burnout even on 200,000% overload.
4. Mirror scale with knife edge pointer.
5. Input protected with an internal 1 amp fuse.

Complete with test leads 7500 and operator's manual

Model 261.....**$65.00**
270-3.....**$68.00**

ROLL TOP VOMs

Model 261-RT.....**$71.00**
270-3RT.....**$74.00**

WRITE FOR BROCHURE 2074 ON COMPLETE LINE OF TEST EQUIPMENT

NEW Simpson
4½" PYROMETERS
2% ACCURACY

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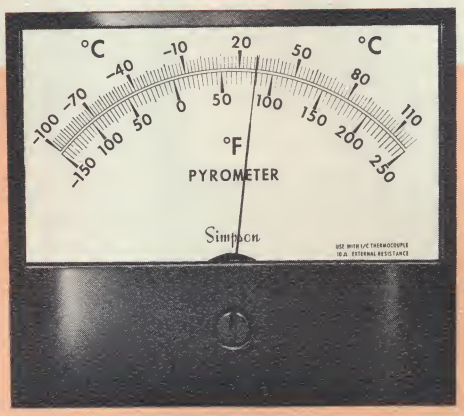
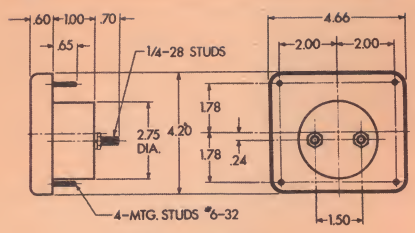


4½" Model 3324



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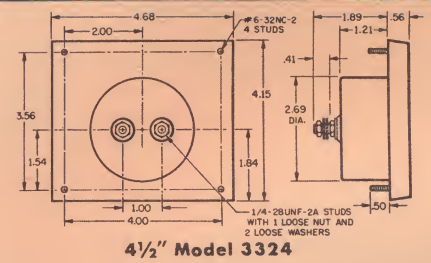

4½" Model 3324

PYROMETERS

Available in two versions: Standard bakelite Model 29 and Model 3324. Rugged seal for extreme conditions. Both models are compensated for ambient temperature changes and include copper circuit compensation. All pyrometers are calibrated for use with iron constantan thermocouples which are available as accessory items. Pyrometers —150 to +250°F. are calibrated for 5 ohm thermocouple resistance. All other units are calibrated for 10 ohm thermocouple resistance.

Each pyrometer is furnished with an external adjustable series resistor to permit use of lower resistance thermocouples in the field.

MODEL 29

Temperature Range °F	Temperature Range °C	External Resistance Ohms (max.)	Current Sensitivity MA— Approx.	Cat. No.	Price
−150 to +250	−100 to +120	5Ω	.20	21200	$33.00
0-300	− 20 to +150	10Ω	.20	21202	33.00
0-500	− 20 to +260	10Ω	.35	21204	33.00
0-750	− 20 to +400	10Ω	.30	21206	33.00

MODEL 3324

−150 to +250	−100 to +120	5Ω	.20	21201	$45.00
0-300	− 20 to +150	10Ω	.20	21203	45.00
0-500	− 20 to +260	10Ω	.35	21205	42.00
0-750	− 20 to +400	10Ω	.30	21207	42.00

THERMOCOUPLES

All thermocouples are iron-constantan, calibrated to exactly 5 or 10 ohms ±1% per table.

Types 21221 and 21224 are iron constantan thermocouple wire in a stainless steel overbraid for rugged service application where flexing or abrasion would cause deterioration of standard thermocouples.

Types 21222 and 21223 are iron-constantan thermocouples with a glass cloth overbraid. These thermocouples are suited for most general purpose use and for permanent mounting in protected sheaths or conduit.

THERMOCOUPLES

Cat. No.	Type	Resistance	Price
21221	I/C	5Ω	$12.75
21222	I/C	10Ω	4.50
21223	I/C	10Ω	3.75
21224	I/C	10Ω	23.25

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